

PERSPECTIVES on Science and Christian Faith

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*"The fear of the Lord
is the beginning of Wisdom."*

Psalm 111:10

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2. Authors must submit **an electronic copy of the manuscript formatted in Word** as an email attachment. Typically 2–3 anonymous reviewers critique each manuscript submitted for publication.
3. Use endnotes for all references. Each note must have a unique number. Follow *The Chicago Manual of Style* (16th ed., sections 14.1 to 14.317).
4. While figures and diagrams may be embedded within the Word text file of the manuscript, authors are required to also send them as individual electronic files (JPEG or TIFF format). Figure captions should be provided as a list at the end of the manuscript text. Authors are encouraged also to submit a sample of graphic art that can be used to illustrate their manuscript.

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James C. Peterson

Writing for an Interdisciplinary Journal

Not many of us can be Alister McGrath with an earned doctorate from Oxford in molecular biophysics and another earned doctorate from Oxford in theology. Nor can many of us be Denis Lamoureux with a doctorate in dentistry, a PhD in developmental/evolutionary biology, and a third doctorate in theology. Yet even McGrath has not turned his prolific writing to molecular biophysics for some time now, nor is Lamoureux keeping up his dental practice. To master any *one* field and stay at the lead of it is quite an accomplishment and as demanding as most of us can hope to achieve.

Now we might be quite cognizant of a field other than our own. Our journal was created to encourage such dialogue. Yet the specialist has sensitivities, precision, and insights that are difficult to master in more than one area of study. Even within one department, the work of a geneticist in population behaviors might seem incomprehensible to a geneticist who focuses on the molecular level. An astrophysicist might wonder at the byways of a string theorist in her own physics department. This is not a council of despair for intradisciplinary, let alone interdisciplinary work; rather, it is a recognition that most of us mortals need a team to be effective in writing at the highest level when more than one field is under consideration. Since the mission of *Perspectives on Science and Christian Faith* is to move forward the understanding of the interaction of science and Christian faith, its articles will usually require knowledgeable discussion across classic disciplinary lines. Cosmologists will talk with theologians. Biblical scholars will listen to social historians. Multiple authors working together can meet some of those expertise needs as an article first takes shape.

Now blind peer review for this journal does not require that the author has one doctorate, let alone two or more to write an article. Yet any article peer reviewed for *PSCF* will be read by experts in each of

the fields an article primarily addresses. Such review has avoided many a blindsided blunder and has often added insightful cross-fertilization. The article that reaches publication is then read in the journal by experts in even more impinging fields of study. A given article is off to the best start toward meeting those multiple and exacting standards if it is originally written by experts in each of the primarily involved fields.

Further, concerning the review process, review is by peers who do not know if there is one or more authors; therefore, no manuscript is excluded due to the number of writers. Fine articles have graced our pages from single pens, but it is to the advantage of the writers, peer reviewers, editor, and journal readers that the multiplicity of disciplines addressed is mastered as early in the process as possible. Teaming authors with different expertise can help that process. The dialogue is likely to be more nuanced, the understanding more complete, the argument more compelling. Once published, challenge and insight will increase as yet more disciplines come to consider its contribution. That is most well founded, when the relevant disciplines have a voice from the start.

Of course, part of what makes such cooperation difficult is that our academic preparation rewards individual effort and accomplishment. An academic degree bears just one name as a reward for long solitary hours. Introverts who are refreshed by quiet reflection are well suited to the task and dominate the resulting professions. Working with a team might be outside one's usual comfort zone and that is multiplied when the team is cross-disciplinary. Understanding each other can be elusive as jargons clash. The involved fields might feel incommensurable. Writing by committee can be a miserable experience if energy is drained in constant compromise until no one recognizes, in the developing

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manuscript, anything in particular that any one author wanted to say.

However, making the effort to cooperate can build insightful, indeed exciting synergism. We are not alone in finding the character necessary to do it. The lists of virtues in the New Testament are mostly of *community* virtues, qualities that help us to live and work well with each other. Colossians 3:12 reads, "Put on then, as God's chosen ones, holy and beloved, compassion, kindness, lowliness, meekness, and patience." Indeed the presence of God is described as most evident in those who live the fruit of the Spirit: "love, joy, peace, patience, kindness, goodness, faithfulness, gentleness, and self-control" (Gal. 5:22). These are not bad characteristics to find in a research partner, or in oneself, by God's grace, for any cooperative endeavor. For success in the work we do in *PSCF*, expectant prayer for such godly characteristics for each member of the team,

can be as crucial as academic rigor. "Be subject to one another out of reverence for Christ" (Eph. 5:21).

Again, in our peer-review system, single authors are welcome and are evaluated in the same way as teams of authors. But it is not surprising for interdisciplinary work, that well-developed teams are disproportionately successful in achieving the thorough accuracy and nuance that is required when working with multiple disciplines. ASA/CSCA is a community in which not only task friendships are established, but also personal and lasting friendships. We are in this endeavor together. When you write for *PSCF*, please consider the possibility of teamwork from the beginning, seeking out those you might work with to the benefit of our readers and the larger kingdom.

James C. Peterson, *Editor*

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A Physics Challenge

Science is constantly moving. **Robert Mann**, professor of physics at the University of Waterloo and former president of both the Canadian Association of Physicists and the Canadian Scientific and Christian Affiliation, has written an intriguing description of the latest developments in physics along with insights and challenges that these may raise for Christian faith. It can be read at www.ASA3.org or www.CSCA.ca.

This article is intended as an invitation. Readers are encouraged to take up one of the insights or challenges, or maybe a related one that was not mentioned, and draft an article (typically about 5,000 words) that contributes to the conversation. These can be sent to Mann at robertbmann@sympatico.ca. He will send the best essays on to peer review, and then from those we will select some for publication in a physics theme issue of *Perspectives on Science and Christian Faith*. For full consideration for inclusion in the theme issue, manuscripts should be received by Mann electronically before December 31, 2012.

What on *Earth* Is God Doing? Relating Theology and Science through Biblical Theology

Graham J. O'Brien and Timothy J. Harris



Graham J. O'Brien



Timothy J. Harris

It is common to consider faith and science in terms of two books: “The Book of Scripture” and “The Book of Nature.” In our media, schools, universities, and even in some churches, it is held that these two “books” are incompatible – one is correct, the other is in error – which-is-which depends on your point of view. The problem with this polarizing view can be seen in how the word “literal” is used by both atheists and Christians alike to support their respective positions. However, if God is the Creator, then this position is untenable, since both books of revelation reveal the same God.

*This article seeks to develop a unique approach, using biblical theology and, in particular, an understanding of the *missio Dei* as the basis to outline the “literal” meaning of scripture – as the original authors and hearers understood the text. Biblical theology therefore provides the means to hold the two books of revelation together, by identifying the central theological themes that make the early chapters of Genesis so important.*

For many, we live in an age in which two competing meta-narratives exist, two “big picture” stories upon which to base one’s life. The first, provided by materialistic science, speaks of deep time, evolutionary history, and scientific progress. Furthermore, in the context of secular Western culture, which believes itself to be “the highest, most enlightened, most liberal, most rational, most modern/post-modern and most civilized thinking of humankind,”¹ the scientific worldview provides the major interpretation of existence. In contrast, Christianity speaks of a creator God and identifies the world as “Creation,” which for some means that a more “narrow” (literal) interpretation of scripture is required for a biblical faith. As a result, the conflict model often portrayed between science and theology

is really about two competing narratives of life.²

To move away from a conflict model, these two metanarratives are often held together by talking of “two books” – the Book of Nature and the Book of Scripture – the two sources by which the mission of God is revealed to us, in which God is both Creator and Redeemer. So often, however, our understanding of the *missio Dei* (Mission of God) focuses on God as Redeemer – salvation history centered on Christ – and we forget that

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God's mission is primarily that of creation history – from creation (Genesis 1–3) to new creation (Revelation 21–22) – the time when God's mission for all of creation will be fulfilled. Salvation history then becomes God's reorientation of creation history toward its proper goal, after God's intention was distorted by sin.³ In this context, the goal and purpose framing the biblical narrative becomes critical to our theological methodology so that the wider parameters that frame the broader sweep of the biblical narrative are not lost.⁴ As John Haught suggests, "As long as the universe is unfinished, so also is each of us ... Our personal redemption awaits the salvation of the whole."⁵

As Christianity comes to terms with the advances of science and how that shapes our understanding of the world and the universe, biblical theology provides a means to critique the philosophical assumptions that have been associated with materialistic science, especially through atheistic naturalism, as well as to critique a narrow literalistic reading of scripture, both of which perpetuate the conflict model between science and theology.⁶ Biblical theology, the drama of scripture as canonically received, remains faithful to the theological pattern of scripture by placing importance on the context of the text⁷ (the "face value"⁸ meaning) and the theological themes that unify scripture. As a result, the text is read as the ancient authors intended and as the ancient audiences would have heard it, while also giving cognizance to the deeper theological truth claims underlying the text that unify scripture as a whole, rather than setting "literal" over-and-against "metaphorical" or "symbolic."⁹

While encompassing the historical-critical methodology of biblical criticism, including considerations of the genre which, for the early chapters of Genesis, are described as "mythology" in its stricter academic sense—a narrative giving expression to a symbolic universe or primitive cosmology,¹⁰ proto-historical story,¹¹ or primeval history¹²—biblical theology reads scripture "in its totality according to its own, rather than imposed categories."¹³ A comparable approach is seen in the philosophy of science in which reductionism focuses on the details, while emergence identifies the "whole" as more than the sum of the parts. Thus, a fruitful way to understand the biblical metanarrative is to talk of the *missio Dei*, in which mission derives from the very being of God,

as the God of sending love.¹⁴ One way to express this is to ask the question, "What on Earth is God doing?"—both theologically and scientifically. To answer this question, biblical theology will be used to identify what the word "creation" means theologically in the first chapters of Genesis, and then to identify the purpose of God's act of creation. Following from this understanding, we can determine the role of humanity within creation, including the God-given gift of science within the realm of God's creation.

The Sphere of Creation: Garden-Sanctuary

The approach of biblical theology is even more relevant in our age of modern scientific discovery, in which the creation accounts recorded in Genesis 1–3 have been a focus of polarizing views. Our proposal seeks to affirm a biblical faith that is consistent with the understanding of "literal" for the majority of Christian history that emphasizes the meaning that the original authors intended.¹⁵ From Origen (ca. AD 185–254) to Augustine of Hippo (AD 354–430) to John Calvin (AD 1509–1564), the meaning of the creation narratives is deeper than the words alone and emphasizes the sense that the author intended, rather than the modern narrow understanding of "literal."¹⁶ Augustine in his final commentary on Genesis 1–3, *De Genesi ad Litteram*,

is insistent that the literal meaning thereby derived may never stand in contradiction to one's competently derived knowledge about "the earth, the heavens, and the other elements of this world."¹⁷

Furthermore, John Calvin (a central figure of Reformed theology) makes the point several times in his commentary on Genesis with reference to astronomy, that "Moses therefore, rather adapts his discourse to common usage."¹⁸ For the majority of Christian history, the understanding of "literal" moves us away from any notion of conflict between science and theology on textual grounds, and stands in stark contrast to the narrow literalism proposed by some Christians today. As we are suggesting, a correct "literal" reading of scripture does not contradict what is found in the book of nature.

The recent emphasis on the *missio Dei* provides a theological framework for biblical theology in which the totality of God's activities includes any-

thing and everything that comes within the creation and sustaining of the cosmos. This includes humanity as male and female, who are called to fulfill all that God intended as beings made in the image and likeness of God—including science, which has given us a new vision of God's creation, from its vastness to its infinite detail. At the center of God's mission is the act of creation, in which the primary distinction in the biblical creation account¹⁹ is that between God the Creator (who alone is uncreated) and everything else that is both a creation of God and contingent on God for its existence.

Furthermore, the worldview described in Genesis is undergirded by a functional ontology,²⁰ in which the theological importance lies in the creation of the various *domains/functions* of existence (light, darkness, sky, water, land) and the establishment of the various *functionaries* within these domains (sun, moon, stars, birds, fish, animals, humans) reflected in the pairing of the days (days 1 and 4; days 2 and 5; days 3 and 6).²¹ The assumption behind these texts is that God was responsible for material origins, even though this is not the theological focus of the text.²² Thus this functional ontology is in stark contrast to the material ontology proposed by scientism, in which science in its methodology focuses purely on the material world but is given ontological status through materialism.²³ In addition, a more fundamental/literalist view of scripture also uses a materialistic ontology, in which the focus becomes the timing of creation rather than its function. As a result, reading the Genesis accounts with a functional ontology as originally intended is vital for a correct interpretation of these passages and avoids any notion of conflict between science and theology on materialistic grounds.

Moving from the general sphere of creation to the more specific features of the creation account, Genesis 2 identifies one of the most significant features regarding the garden that is obvious, yet frequently overlooked. The garden that is planted by God (Gen. 2:8) is not *coextensive* with all creation, but is rather a specific region upon Earth, delineated with boundaries and guarded entry points—it is a *sanctuary*. Within the garden is security and order, while beyond the garden walls lies the uncultivated and more chaotic existence. It is into this environment that the “archetypes of humanity”²⁴ were brought (Gen. 2:15). There are subtle nuances at this

point between the first and second creation accounts: although created from the ground, the man is not created *in* the garden but *brought in* and located in the garden, having been formed outside. Significantly, these themes are also identified in the experience of Israel entering the promise land, in particular, in the Song of Moses in Exodus 15 and in Exod. 19:5–6a. The theological significance of these passages is that they identify God's intention clearly—that is, that the establishment of the sanctuary upon a mountain of God's own possession is central to God's purposes in and through the gathering of a holy people.²⁵

By investigating the ancient Near Eastern context of the Genesis creation accounts, Rikk Watts identifies that the garden/sanctuary lies within a larger context which describes “creation as temple-palace.”²⁶ God's act of creation thus becomes “the creation of the cosmic temple with all its functions and with God dwelling in its midst,”²⁷ a process brought to completion in the new heavens and earth of Revelation 21–22. In this context, “new” denotes completion or transformation rather than destruction and remaking. Furthermore, there is some delineation of space within the garden. The clearest indication of this is the river that flows out of Eden and into the garden (Gen. 2:10). The implication is that some notional delineation may be drawn between Eden and the garden. There is a sense that the source of the river is located in the dwelling or temple of God, and that the garden is the immediate surrounding area. God is noted walking to and fro within the garden in the cool of the day (Gen. 3:8), with the suggestion that this is something of a visitation, albeit from within the neighborhood. The whole encounter between the serpent and Eve, together with the subsequent disobedient actions, is not described as being in the clear presence of God. The garden is a space owned and inhabited by God, but Eden and all that it represents by way of the temple court of God is also distinct.

If this analysis is valid, then some notional tripartite delineation can be proposed. First, at the center of Eden is the temple-palace of God, God's dwelling place, the center of all that is life giving, where decisions are made and the mission of God proceeds. Secondly, surrounding this is the walled garden, the Garden of Eden, with qualities of fertile earth to be cultivated and a fruitful abundance to be enjoyed. Walton describes this archetypal sanctuary as the

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“antechamber,”²⁸ the sacred space adjoining God’s dwelling place and the place where humanity dwells and worships God. Thirdly, beyond the garden are areas of the earth lacking these qualities, wilderness and desert-like, where habitation is imperiled and subject to greater threat and disorder. It is this wider world that needs to be subdued and transformed into the garden as it extends its boundaries. This is land to be inhabited and cultivated through the agency of humankind living up to its calling and capacities as the image and likeness of God. Importantly, as G. K. Beale clearly identifies, there are significant parallels between this tripartite division of Eden—temple garden sanctuary / anti-chamber / the outside world—and the tripartite division of Israel’s tabernacle, and later temple, that emphasize the theological importance of such a view.²⁹ As such, humanity is called to live in the presence of God who resides in the temple (Holy of Holies), and to extend the sanctuary boundaries to cover the whole earth.

The Purpose of Creation: *Shalom*

Creation as represented in Genesis 1 and 2 is not a static state to be preserved in pristine condition, but an ongoing project of cultivation and culture making in which order (creation as God intended) is imposed on chaos/disorder (a state of creation that is not yet ordered as God intends).³⁰ From this depiction, we can make significant statements about the character and direction of God’s creative purposes. There are two indicators as to what this involves. One is the reference to “rest” as the goal of creation as realized in the final day, day seven (Gen. 2:1-3). In ancient Near Eastern context, rest is the outcome of triumph over chaotic forces: in the first creation account, it is the *telos* of creation, its goal and endpoint. God now rules from his residence (Eden), sustaining the normal routines of creation.³¹ This reference to rest at the conclusion of this first account is relatively brief, but it receives more extensive attention in later passages where it comes to embody the second indicator, that of “shalom,” as the fullness of all that creation was intended to be (most clearly as delineated in Psalm 132, among other passages). As Cornelius Plantinga suggests,

In the Bible shalom means universal flourishing, wholeness, and delight—a rich state of affairs in

which natural needs are satisfied and natural gifts fruitfully employed, all under the arch of God’s love. Shalom, in other words, is the way things are supposed to be.³²

The expression of this state, with its potential for enhancement and fulfillment, is first seen in Eden and the surrounding garden—a limited part of creation with all the qualities of *shalom* as an environment as much as an individual state and experience. God created humankind, male and female, in his image and likeness, to be agents in this ongoing creation project: to till the soil, to cultivate, and to be culture makers—creating community and society while reflecting the image of God. From this point, the historical development of scripture then moves “from garden to city, from Eden to New Jerusalem,”³³ where the whole of creation is restored as God’s creative act reaches its goal.

For much of the twentieth century, the notion of purpose has been rejected in the philosophy of science, especially within evolutionism in which, a priori, the existence of both God and purpose is denied so that the evolutionary process is “at its core, directionless and purposeless.”³⁴ In this view, chance is the antithesis of any notion of God’s divine providence and design. This metaphysical position has recently been challenged from within science by recent understandings of evolution identified as consonant with aspects of theology, including purpose, Christology, and pneumatology.³⁵ Furthermore, the understanding of emergent evolution, a new philosophy of science, identifies a narrative property in evolution that is consonant with the narrative structure of religious belief;³⁶ both can be included within a “holistic epistemic network.”³⁷ Significantly, the understanding of shalom from biblical theology broadens such a view by including the potential for enhancement and fulfillment, so that emergent evolution results in the fulfillment of all that God intended for creation. Therefore, shalom encompasses what Haught calls the “promise” of creation, that is, that the purposefulness of the universe means that it is “orientated towards the implementation of something intrinsically good.”³⁸ With the arrival of humanity, shalom also includes a process to make creation as God intended, by the extension of the garden through human agency.

The Process of Continuing Creation: Humanity and Extending the Garden

Biblical theology identifies the sphere and purpose of God's creative activity within a functional view of creation that is completed when the functionaries are established, primarily God in the temple-palace (Eden) and humanity as the image-bearers of God in the garden (of Eden). The creation of male and female in the image and likeness of God not only features as the crowning element of creation, but also theologically identifies humanity as sharing in and employing the dominion of God, through vice-regal authority, over the rest of creation. Humanity thus functions as the installed image-bearers of God within creation to look after creation on behalf of God,³⁹ extending order over that which is yet to come under God's authority in the process of filling the earth. This is a participatory role in the ongoing creative process of addressing a world that still needs to be brought to order and subdued, where the mandate to spread out, fill, and subdue is an activity from within the garden as it extends its boundaries. A further indicator of the commission and responsibilities given to the human race comes with reading the second creation account in parallel to the first. There are numerous points of connection between the two accounts, but we should note that the indicators that Gen. 2:15 is an elaboration on the mandate given in Gen. 1:28 are the key verbs that specify Adam's functional responsibilities in the garden: to "till" the garden and to "guard" it.

Within the dialogue between science and theology, there is currently much discussion about the historicity of Adam and Eve: were they the first humans, or are they purely figurative characters within the narrative? Again, these are positions that cause tension between those seeking a "literalistic" view (original first couple directly created by God) and those taking a scientific view based on human evolution through common ancestry (figurative view of Adam and Eve).⁴⁰ However, the current arguments are still forcing a choice based on material ontology. In contrast, our reading of biblical theology focuses on the theological importance of Adam and Eve while affirming their existence.

Recently, R. J. Berry published a detailed study on various perspectives about Adam, but significantly the appeal to biblical theology needed to be taken further.⁴¹ Berry's claim that "both an individual Adam and a 'generic' Adam seem to be exegetically possible"⁴² is largely based on the "Fall" and New Testament passages on sin (Romans 5-8, in particular). There is, however, a theological pattern that can be discerned, in that, as the archetypal representatives of all humanity, what is true for Adam and Eve is also true for all humanity, both in terms of God-given mandate and in terms of disobedience.⁴³ Therefore, it is possible to see Adam and Eve both as a particular man and woman (but not the only humans, as suggested by Gen. 4:12-17) and as a representative couple, the archetype of all humanity. Although this may be self-evident, in many churches and in secular society people are forced to choose between these two options.

The argument from biblical theology for allowing a both/and position can be seen in the high priestly overtones in the sanctuary imagery in Genesis 2,⁴⁴ and the role of high priest in Old Testament tabernacle (Moses) and temple worship, in which the high priest is both a specific individual and a representative of the people. This idea is taken further in the New Testament with Christ who is understood as the great High Priest, and it again emphasizes the specific and representative nature of Christ (Heb. 5: 1-10). Another important understanding in biblical theology is the pattern of God calling specific people in bringing about the *missio Dei* (e.g., Abraham, Moses, David, the twelve disciples, Mary the Mother of Jesus, and Paul). Therefore, it is possible to talk about an actual Adam and Eve from within a small population of *Homo sapiens*,⁴⁵ who emerged out of a creative biological process (evolution) to be the first ones who could respond to God in "covenantal fellowship."⁴⁶

The "Fall" is, as Berry rightly suggests, an important theological consideration for identifying a historical Adam and Eve.⁴⁷ If Adam and Eve are understood as archetypes, the "Fall" marked the rise of human autonomy in defining for oneself what is good and evil rather than dependence on God, something that has marked human history ever since.⁴⁸

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A consideration of shalom is important at this point. The “Fall” was an opting out of relationship as seen in the disruption of relationship between Adam and Eve, the disrupted relationship between humanity and the rest of creation, and most importantly, the broken relationship between humanity and God for which humanity was created.⁴⁹ Far from the increasing or expanding outworking of all that creation was intended to be, that is, the bringing of shalom through human agency, every level of community or society is now characterized by disorder, destructiveness, and the realization of conflict, exploitation, and evil conduct: from family to wider community, the blurring of orderly relationships between the heavens and the earth, and finally rebellion in the form of an entire city-state. Aligned with this is the failure of humanity to bring shalom to creation as a whole—thus, nature is left in its imperfect state. As a consequence, expulsion from the safety and order of the garden and the resulting lack of access to the Tree of Life, meant leaving the arena of shalom behind and entering the world of disorder and natural death.⁵⁰ However, the same mandate remained. In this act of disobedience, God’s creation project has been stalled, now requiring both a great work of salvation, reconciliation, and redemption—the redeeming of what is good and complete out of the mess that rebellious humankind has wrought on the created world.⁵¹ Central to this work of salvation is the movement to restore sanctuary, not only to re-enter the garden but also to see the manifestation and extension of the garden-sanctuary here on earth. The great creation project, while imperiled through disobedience and rebellion, has not been thwarted.

In summary, as archetypes, Adam and Eve were the first with the unique ability to respond to God, and as actual people were brought into the garden-sanctuary by God. Now within the environment of shalom, these two were not only given the mandate to cultivate, guard, and extend the garden, but also, in doing so, to bring all of humanity into a relationship with God.⁵² Their failure to do so resulted not only in expulsion from the garden, a return to their natural state of mortality,⁵³ and further chaos for all humanity and creation as a whole, but also in God taking the “long and tortuous route”⁵⁴ to complete the *missio Dei* begun with creation. While the provision of God’s grace can be identified as the narrative

unfolds, it is with the unmerited call of Abram and Sarah that the purposes of God in creation are re-established (Genesis 12).⁵⁵

Science within a Continuing Creation

The title of this article, “What on *Earth* Is God Doing?,” summarizes the approach taken to understand the meaning of “literal” in terms of biblical theology. In doing so, scripture and science are not seen as incompatible, but rather together they add to our perspectives on God’s creation and the role of science within that creation, as an activity within the mission of God.

As suggested, God’s creation project is continuing toward fulfillment (Revelation 21–22), and humanity is still the means through which God is working for the whole of creation. Therefore, we can ask a further theological question, “How does science fit within what God is doing?” The move from Genesis 1 to Genesis 2 identifies a concern with the significance of the garden/sanctuary and the mandate given to the man, complemented by his corresponding partner, the woman. Together they are charged with tasks and duties that fall within the ongoing creative purposes of God, within an environment provided by God that is both a fertile and potentially productive context for human endeavors. Significantly, the mandate, to till the earth and to guard it, is not a commission to keep it in pristine condition or to maintain the status quo—to care for the natural state of things and not exploit natural resources. The calling for the human race is more than maintenance and responsible stewardship. While acting as functionaries (God’s representatives) within God’s creation includes this, the calling is more specifically for the productivity and cultivation of the garden. This links well with the definition of “culture making” suggested by Andy Crouch who stated that “culture is what we make of the world” and is part of our God-given mandate.⁵⁶

Within this context, what we make of the world includes the activities of science. Recognizing the plurality of God and the manner in which various elements of creation are intended for one another, the essential dimension to such culture making is relational. To be tilling the earth and guarding the

garden is to be caring for creation as well as making community and guiding the shaping of society in a manner that honors and reflects God's creative and orderly purposes. Again reflecting the activity of God, humans are created for conversation, for an ongoing dialogue with the totality of creation: here, "conversation" provides a theological re-visioning of the scientific endeavor as humanity continually explores that which God has made, understanding how this creation was made in order to "guard" and "till" it. As Crouch insightfully puts it,

From the beginning, *creation requires cultivation*, in the sense of paying attention to ordering and dividing what already exists into fruitful spaces ... Human creativity, then, images God's creativity when it emerges from a lively, loving community of persons and, perhaps more important, when it participates in unlocking the full potential of what has gone before and creating possibilities for what will come later.⁵⁷

If we may borrow from Philip Hefner, this would be the fullest expression of what it means to be the "created co-creators,"⁵⁸ with the mandate to extend the garden until order and fullness extend over all the earth. The expansion of the garden is a continuation of the creation process, and one in which all of humanity are to put into effect their divine calling as God's image bearers and to do so through the employment of the aptitudes and capabilities that come with being created in the likeness of God. Therefore, humanity engaging in science is a reflection of the image of God, in which the archetypes of Adam and Eve not only move from *Homo sapiens* to *Homo divinus*,⁵⁹ but also to *Homo scientia*—having to learn how the natural world works in order to harness and develop the material world in order to fulfill the mandate to extend the Garden.

Rather than being opponents, both the biblical metanarrative and scientific understandings can be placed within the *missio Dei* using biblical theology, as part of the God-given mandate to extend the garden resulting in the expansion of God's dwelling place until the whole earth is drawn into and transformed into the habitation of God; all this is suggested through the attainment and experience of shalom. If God's intention for creation is shalom, characterized in the bringing of order and symbolized by the expansion of the Garden of Eden, and if scientific exploration and knowledge is part of God's

mandate to humanity for culture making, then there is an ethical mandate for science not only to explore God's creation, but also to function in a way to further God's purpose of shalom. Again, this is to position science theologically within the mission of God, when so often today the scientific endeavor is identified with a profit motive and the exploitation of nature.

In biblical theology, the narrative of Eden identifies Adam as working the garden to further God's purposes. We can then ask, "What might science in the Garden look like?" This is more than a fanciful question, since God's intent is to bring about the fullness of the Kingdom of God and includes human agency in this process. Therefore, the bringing of shalom provides a biblically sanctioned ethic for the scientific endeavor, in which the scientist (especially scientists who are Christians, but hopefully all scientists) can function in order to increase shalom in creation. Linking this with other biblical mandates such as "neighbor" and "sacrifice,"⁶⁰ along with secular criteria of beneficence and nonmaleficence, provides a powerful, biblically based ethic in which the scientific exploration and application can function in a process consonant with God's purposes for humanity and the whole of creation, thereby avoiding exploitation and greed. This does not mean that science operates to replace God, as has been the case since the Enlightenment, but rather, in a penultimate manner,⁶¹ science must fulfill the God-given mandate to extend the garden.

Conclusion

We have shown how biblical theology identifies the threads in the biblical narrative, of cultivation, guarding, rest, and shalom, all of which are integral to the foundational spheres of the garden-sanctuary and the dwelling place of God as the hope of Israel and, ultimately, the hope for us all. Within such a framework, the book of scripture and the book of nature can be brought together; thus, the intent of the original author and the understanding of the original audience, along with the undergirding theological themes, provide the means for "literal" interpretation today. As such, the *missio Dei* continues, and we understand what God has been doing and continues to do on Earth, including all that science discovers.

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Notes

- ¹Samuel P. Huntington, *The Clash of Civilizations and the Remaking of World Order* (New York: Simon and Schuster Paperbacks, 1996), 310.
- ²See Ian G. Barbour, *When Science Meets Religion: Enemies, Strangers or Partners?* (San Francisco, CA: HarperSanFrancisco, 2000).
- ³A similar movement is also observed within systematic theology in a Trinitarian context in which creation history is centered on Christ (John 1), restored through the cross and resurrection, and the purpose of creation continued through the work of the Holy Spirit.
- ⁴This highlights the importance of distinguishing the means from the *telos*—salvation is not the goal or *telos* of the mission of God, but the critical means to that *telos*.
- ⁵John F. Haught, *Deeper than Darwin: The Prospect for Religion in the Age of Evolution* (Oxford: Westview Press, 2003), 155.
- ⁶Both these approaches fuel the conflict model between science and theology, and as John Haught suggests, both a literalistic reading of nature (naturalism) and a narrow-literal reading of scripture (young earth creationism) represent a misreading of their respective contexts. *Ibid.*, 13–25.
- ⁷Christopher J. H. Wright, *The Mission of God: Unlocking the Bible's Grand Narrative* (Nottingham: Inter-Varsity Press, 2009), 195.
- ⁸John H. Walton, *The Lost World of Genesis One: Ancient Cosmology and the Origins Debate* (Downers Grove, IL: IVP Academic, 2009), 102–6.
- ⁹The theological importance of the biblical metanarrative identifies history as neither “bare fact” nor “subjective interpretation” but is “the meaningful narrative of events and intentions.” Therefore, biblical theology identifies that the Bible can be read as the drama of God’s sovereignty in the renewal of all creation, in which all authority belongs to God revealed in Jesus Christ and the Spirit. N. T. Wright, *The New Testament and the People of God*, vol. 1 of *Christian Origins and the Question of God* (Minneapolis, MN: Fortress Press, 1992), 82 and 139–44. The result is a multilayered approach that Wright describes as a five-act model. A six-act drama has also been proposed. See Craig Bartholomew and Michael Goheen, *The Drama of Scripture: Finding Our Place in the Biblical Story* (London: SPCK, 2006). Biblical theology is different to, but not exclusive of, systematic theology and philosophical theology. For an overview of biblical theology, see Craig Bartholomew et al., eds., *Out of Egypt: Biblical Theology and Biblical Interpretation*, vol. 5 of *The Scripture and Hermeneutics Series* (Grand Rapids, MI: Zondervan, 2004).
- ¹⁰Walton, *The Lost World of Genesis One*, 14–5.
- ¹¹Gordon J. Wenham, *Genesis 1–15*, ed. John D. W. Watts, vol. 1 of *Word Biblical Commentary* (Waco, TX: Word Books, 1987), 54.
- ¹²Tremper Longman, *How to Read Genesis* (Downers Grove, IL: IVP Academic, 2005), 64, 101–25. Wenham, *Genesis 1–15*, 1:xlvi, lii. “Theological history” is a broader term also utilized. See Longman, *How to Read Genesis*, 60. These descriptions of genre do not negate the importance of these writings, but rather, locate them within their historical context of the ancient Near East in order to understand what the original authors intended and what the original audiences would have understood within a worldview very different to our own. Even though these writings come out of an ancient Near Eastern context, as Wenham notes, Genesis 1–11 does however represent an alternative worldview to that found in other cultures of the ancient Near East. See Wenham, *Genesis 1–15*, 1:xlvi, xlix–l. Also see Rikk E. Watts, “On the Edge of the Millennium: Making Sense of Genesis 1,” in *Living in the Lamplight: Christianity and Contemporary Challenges to the Gospel*, ed. H. Boersma (Vancouver: Regent College Publishing, 2001).
- ¹³Bartholomew, *Out of Egypt*, 1.
- ¹⁴The church’s mission in this context is to participate in God’s continuing mission for all people and the whole of creation. See David J. Bosch, *Transforming Mission: Paradigm Shifts in Theology of Mission*, vol. 16, American Society of Missiology series (Maryknoll, NY: Orbis Books, 1991), 370–93. C. J. H. Wright, *The Mission of God*: 67–8.
- ¹⁵N. T. Wright, *Scripture and the Authority of God* (London: SPCK, 2005), 53–5.
- ¹⁶For examples, see Origen and Augustine in Denis Alexander, *Creation or Evolution: Do We Have to Choose?* (Oxford: Monarch Books, 2008), 155–6; Augustine in Alister E. McGrath, *A Fine-Tuned Universe: The Quest for God in Science and Theology* (Louisville, KY: Westminster John Knox Press, 2009), 100–3.
- ¹⁷H. J. Van Till, “Basil, Augustine, and the Doctrine of Creation’s Functional Integrity,” *Science and Christian Belief* 8, no. 1 (1996): 29. Also see Davis A. Young, “The Contemporary Relevance of Augustine’s View of Creation,” *Perspectives on Science and Christian Faith* 40, no. 1 (1988): 42–4; Andrew J. Brown, “The Relevance of Augustine’s View of Creation Re-evaluated,” *Perspectives on Science and Christian Faith* 57, no. 2 (2005): 134–45.
- ¹⁸John Calvin, *Commentaries on the First Book of Moses Called Genesis*, vol. 1, trans. John King (Edinburgh: The Calvin Translation Society, 1847), 79–80, 84–7. Quote taken from page 87.
- ¹⁹Although modern historical-critical methodology identifies more than one creation account, as canonically received, these do form one consistent theological account.
- ²⁰Walton, *The Lost World of Genesis One*, 23–8, 35.
- ²¹*Ibid.*, 54–68. Wenham, *Genesis 1–15*, 1. Watts, “On the Edge of the Millennium,” 133–4.
- ²²Walton, *The Lost World of Genesis One*, 43–4.
- ²³Scientism is the metaphysical belief central to secularism that truth is only obtainable through science, in which scientific knowledge provides the “most profound and accurate knowledge” and provides “the paradigm for true knowledge.” Harold W. Turner, *Frames of Mind: A Public Philosophy for Religion and Cultures* (Auckland: The DeepSight Trust, 2001), 241–2; Haught, *Deeper than Darwin*, 32, 48. Scientism can also be called “naturalism,” “scientific materialism,” or “scientific naturalism.” See J. F. Haught, “Science and Scientism: The Importance of a Distinction,” *Zygon* 40, no. 2 (2005): 364–5.
- ²⁴Walton, *The Lost World of Genesis One*, 70–1. Adam and Eve as archetype means representative and definer of class, so that what is true of the archetype is true of all humanity.
- ²⁵G. K. Beale, *The Temple and the Church’s Mission: A Biblical Theology of the Dwelling Place of God*, vol. 17 of *New Studies in Biblical Theology* (Downers Grove, IL: InterVarsity Press,

2004), 69–70. Also see Allen P. Ross, *Creation and Blessing: A Guide to the Study and Exposition of the Book of Genesis* (Grand Rapids, MI: Baker Book House, 1988). It is curious that the more regular term for being placed is not used (*sûm*), but a rarer verb is employed, semantically related to the notion of resting (*nûah*). While such details are no more than suggestive, they do point in the direction of a qualitative existence, not just mere presence.

²⁶Watts, "On the Edge of the Millennium," 143–6. —, "The New Exodus/New Creational Restoration of the Image of God: A Biblical-Theological Perspective on Salvation," in *What Does It Mean to Be Saved? Broadening Evangelical Horizons of Salvation*, ed. J. Stackhouse (Grand Rapids, MI: Baker Academic, 2002), 18–20. Also see Jon D. Levenson, *Sinai and Zion: An Entry into the Jewish Bible* (San Francisco, CA: Harper & Row, 1985), 142–5. As Rikk Watts suggests, it is the experience of the Exodus that shapes the writing of the biblical creation accounts ("On the Edge of the Millennium," 143–6).

²⁷Walton, *The Lost World of Genesis One*, 84.

²⁸*Ibid.*, 82.

²⁹Beale, *The Temple and the Church's Mission*, 17:29–80. This tripartite division is also evident in the tabernacle and its associated festivals and observances. At a symbolic level, the layout and furnishings of the tabernacle reflect an essential cosmology of the heavens and the earth. The tripartite division is clearer, with the most holy place corresponding to the inner sanctum, the temple dwelling and heavenly court of God, surrounded by the holy place, the sanctuary. Taken together, these two correspond to the temple palace that comprised Eden and the surrounding garden. Outside the tabernacle precincts lie the wider world, potentially inhabitable and the realm in need of cultivation and culture-making endeavors. The color schemes within the tabernacle reflect elemental colors in which the foundations of mountains are securely located above deep waters, while the horizons of earthly plains meet the greater skies, resplendent in jewels and lamplight and the grandeur of the heavenly expanses as the greater reality setting the celestial context for earthly existence. The fusion of heaven with earth is foreshadowed as the goal of the great creation project and indicative of what truly constitutes the dwelling place and royal court of YHWH. Any approach in this direction is entirely through the agency and provision of God, a means of grace without which life will be confined to the vulnerability, struggles, and chaotic forces outside the garden.

³⁰This is "chaos" in a theological rather than a scientific sense, and is not used to indicate forces in opposition to God, but rather that the material world is in a process of being continually created/ordered.

³¹Walton, *The Lost World of Genesis One*, 72–7. Walton makes the important point that a deity only rests within a temple.

³²Cornelius Plantinga, *Engaging God's World: A Christian Vision of Faith, Learning, and Living* (Grand Rapids, MI: Wm. B. Eerdmans, 2002), 200.

³³Michael W. Goheen and Craig G. Bartholomew, *Living at the Crossroads: An Introduction to Christian Worldview* (Grand Rapids, MI: Baker Academic, 2008), 104–5.

³⁴Quote taken from John F. Hought, "Does Evolution Rule Out God's Existence?," in *An Evolving Dialogue: Theological*

and Scientific Perspectives on Evolution, ed. J. B. Miller (Harrisburg, PA: Trinity Press International, 2001), 340. Also see Ted Peters and Martinez Hewlett, *Evolution from Creation to New Creation: Conflict, Conversation, and Convergence* (Nashville, TN: Abingdon Press, 2003), 49. Daniel Dennett calls evolution "a mindless, purposeless process," as quoted in Barbour, *When Science Meets Religion*, 95.

³⁵Recently Simon Conway Morris has explored purpose in evolution. See Simon Conway Morris, *Life's Solution: Inevitable Humans in a Lonely Universe* (Cambridge: Cambridge University Press, 2003). —, ed., *The Deep Structure of Biology: Is Convergence Sufficiently Ubiquitous to Give a Directional Signal?* (West Conshohocken, PA: Templeton Foundation Press, 2008). For theological reflections, see Graham J. O'Brien, "A Theology of Purpose: Creation, Evolution and the Understanding of Purpose," *Science and Christian Belief* 19, no. 1 (2007); —, "The Story of Our Creation," *Colloquium* 41, no. 2 (2009); John Polkinghorne, *Science and the Trinity: The Christian Encounter with Reality* (New Haven: Yale University Press, 2004).

³⁶O'Brien, "The Story of Our Creation."

³⁷"Holistic epistemic network" is taken from Robert John Russell, "Natural Sciences," in *The Blackwell Companion to Christian Spirituality*, ed. Arthur Holder (Oxford: Blackwell Publishing, 2005), 330–1.

³⁸Hought, *Deeper than Darwin*, 128, 42–4 and 85–6.

³⁹Watts, "The New Exodus," 18–20. Also see David J. Bryant, "Imago Dei, Imagination, and Ecological Responsibility," *Theology Today* 57, no. 1 (2000): 36.

⁴⁰To get a feel for the growing tension, see Richard N. Ostling, "The Search for the Historical Adam," *Christianity Today Magazine* (2011), <http://www.christianitytoday.com/ct/2011/june/historicaladam.html>. For an outline of three models, see Alexander, *Creation or Evolution*, 234–43.

⁴¹R. J. Berry, "Adam or Adamah?," *Science and Christian Belief* 23, no. 1 (2011): 33–9. In trying to develop an approach based on the biblical metanarrative, the context of the garden-sanctuary however is not explored, and the arguments presented in this paper add further weight to the overall position for both a historical and figurative sense of the "Fall."

⁴²*Ibid.*, 48.

⁴³"Federal Headship" is the term used by *ibid.*, 42–4.

⁴⁴Wenham, *Genesis 1–15*, 1:65.

⁴⁵See Graham J. O'Brien, "Perfecting Not Perfect: Christology and Pneumatology within an Imperfect Yet Purposeful Creation," *Theology and Science* 7, no. 4 (2009): 409–10, footnote 15. Also see —, "The Story of Our Creation," 158.

⁴⁶—, "A Theology of Purpose," 69–70. For a comprehensive discussion on the emergence of humanity and the unique ability to transcend biological origins, resulting in science and religious imagination, see J. Wentzel van Huyssteen, *Alone in the World? Human Uniqueness in Science and Theology* (Grand Rapids, MI: William B. Eerdmans Publishing, 2006). For a discussion on human evolution, see Alexander, *Creation or Evolution*, 214–43.

⁴⁷Berry, "Adam or Adamah?," 44–8.

⁴⁸C. J. H. Wright, *The Mission of God*, 164.

⁴⁹Berry, "Adam or Adamah?," 33–9.

⁵⁰O'Brien, "Perfecting Not Perfect," 409–10.

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⁵¹For a discussion of theodicy and God's response, see O'Brien, "Perfecting not Perfect."

⁵²Also see Berry, "Adam or Adamah?," 39-42.

⁵³O'Brien, "Perfecting Not Perfect," 409-10.

⁵⁴N. T. Wright, *Evil and the Justice of God* (London: SPCK, 2006), 27-8.

⁵⁵The language of "blessing" and "being blessed" here indicates more than receiving some goodness from the hand of God—it indicates the realization of (at least in part) all that is promised in creation. The blessing of the nations through God's covenant with Abraham ties the later covenants to the fulfillment of the great creation project. A significant feature of the writings in Genesis is how the author or redactor has arranged the material to tell the family history of the patriarchs, beginning each section with "This is the family history of ..." See Wenham, *Genesis 1-15*, 1:xxii.

⁵⁶Andy Crouch, *Culture Making: Recovering Our Creative Calling* (Downers Grove, IL: IVP Books, 2008), 104.

⁵⁷*Ibid.*, 106.

⁵⁸Philip Hefner, *The Human Factor: Evolution, Culture, and Religion* (Minneapolis, MN: Fortress Press, 1993).

⁵⁹See Berry, "Adam or Adamah?," 35-6, 41. *Homo divinus* is a term borrowed from J. R. Stott and used to describe "the ape that bears the image of God." See Graeme Finlay, "Homo divinus: The Ape That Bears God's Image," *Science and Christian Belief* 15, no. 1 (2003): 17-27.

⁶⁰O'Brien, "A Theology of Purpose," 71-2.

⁶¹The distinction between "ultimate" (activity of God) and "penultimate" (human activity) was made by Dietrich Bonhoeffer. See Dietrich Bonhoeffer, *Ethics*, ed. Eberhard Bethge, trans. Neville Horton Smith (London: SCM Press, 1971), 98-119; Lisa Sowle Cahill, "Creation and Ethics," in *The Oxford Handbook of Theological Ethics*, ed. Gilbert Meilaender and William Werpehowski (Oxford: Oxford University Press, 2005), 7-9.

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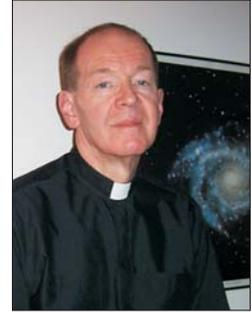
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Kenosis and the Biblical Picture of the World

George L. Murphy



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Some biblical statements about the physical world are out-of-date in light of today's scientific knowledge. The "dome" of heaven and the waters above it in Genesis 1 are well-known instances. St. Paul's belief that biological death of humans is a result of sin is of greater theological significance.

This poses important questions for those who take the authority of scripture seriously. Responses that reject well-established scientific concepts or that try to read them into the biblical text are unsatisfactory. Many theological discussions of scripture recognize that we should not expect to find a modern picture of the universe in the Bible, but they generally do not treat specific issues raised by today's science in any detail.

Philippians 2:7 refers to the kenosis, the self-limitation, of the Son of God involved in becoming human. This concept has been applied to God's work in creation and I suggest here that it is also relevant to inspiration of scripture. As God in the Incarnation accepted the limitations of a human being in a particular culture, so God in inspiring biblical writers accepted the limits of the knowledge of the world in their cultures. This article will focus on issues raised by science in terms of a kenotic understanding of inspiration.

The Problem

Some statements in the Bible about the structure of the world and its processes and history—we may say somewhat anachronistically “about science”—conflict with what we know today.¹ This raises important questions about the inspiration and authority of scripture.

Reports of miraculous events such as the resurrection of Jesus are not in question here. Claims for unique historical phenomena differ from statements about general spatiotemporal features of the world such as those that speak of a dome of the heavens (Gen. 1:6–8) or the waters above it (Gen. 1:7, 7:11; Ps. 148:4). There simply is no such dome and there are no such waters.

Nor is the nonliteral character of some biblical texts at issue. Biblical writers and

their audiences did not confuse metaphor and poetic imagery with realistic description, but they apparently did accept ideas held in Ancient Near Eastern cultures such as heaven as a solid structure with waters above it.² We know today that that is not the way the world is.

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Article

Kenosis and the Biblical Picture of the World

Our goal here is an adequate theological understanding of the fact that the Bible reflects views of the world that are now outdated. The celestial dome and the cosmic ocean are relatively minor aspects of this, but they provide clear examples of the problem and ways in which it has been addressed. I first focus briefly on the dome to set out the basic facts and to illustrate typical responses.³

The Hebrew word in Gen. 1:6–8 for the sky is *rāqia`*. The root verb *rāqa`* has the sense of stamping out something like metal foil or plates, or stretching something out. Particularly relevant is Job 37:18, where Elihu asks, “Can you, like him [God], spread out [*tar`qia`*, a causative form of *rāqa`*] the skies, hard as a molten mirror?” (NRSV). The Septuagint translated *rāqia`* in Genesis 1 as *steréōma*, something solid or firm. (That Greek word is used once in the New Testament in a figurative sense in Col. 2:5, where the NRSV translates it as “firmness.”) The Vulgate has *firmamentum* in the Genesis passage; the King James, “firmament.” NRSV has “dome,” and Luther’s translation is *eine Veste* (modern spelling *eine Feste*).

So the uses of the Hebrew word group and the history of translation of Gen. 1:6–8 indicate that a covering of solid material was meant. But the scientific facts are quite clear: there is no such dome and never was one. How can this contradiction be dealt with?

First, the claims of modern science could be rejected. Few do that explicitly with the dome or the waters, but the situation is different when the Genesis creation accounts are confronted with biological evolution and the idea that creatures were dying for millions of years before humans came on the scene.

Another possibility is to argue that the biblical statements really are in accord with today’s knowledge. The NASB and NIV translation of *rāqia`* as “expanse,” in accord with the *Theological Wordbook of the Old Testament*,⁴ is not strictly wrong but is misleadingly incomplete. “Expanse” allows the reader to understand the word as a reference to the atmosphere, but the question “expanse of what?” naturally occurs, and the word itself has connotations of solidity.

Finally, a common response is, “The Bible is not a textbook of science.” That is true but does not get

at the heart of the problem. While the purpose of the writer of Genesis 1 was not to teach about the nature of the sky, it is still the case that an archaic understanding of the sky was used in the text.

If the Bible is really inspired by God, why does it not have a better picture of the way the world is?⁵ More important than the dome and the waters above it, is the fact that the biblical accounts of cosmic and biological origins are, from today’s scientific standpoint, obsolete. There is nothing in scripture about a big bang or biological evolution.⁶ Sensible people will not insist that scripture should contain technical accounts of relativistic cosmology or Darwinian evolution in order for its religious message to be plausible, but they may reasonably wonder why an inspired text could not have an elementary picture of a cosmic explosion and gradual development of living creatures. That is the kind of thing that we present when we talk to children about such matters.

The Word of God

For many Christians, the phrase, “The Word of God,” simply refers to the Bible. But in its most fundamental sense, the Word of God is Jesus Christ, the Second Person of the Trinity made flesh (John 1:1–18). His life, death, and resurrection are the focus of God’s whole revelatory activity that began with Abraham and continues in the apostolic mission of the church. Much of the theology of the past century has been influenced by Karl Barth’s understanding of the threefold form of the Word of God—the Word revealed as Christ, the Word proclaimed, and the Word written.⁷ The scriptures of the Old and New Testaments are the inspired written witness to God’s revelation in Christ.

In a discussion of the role of scripture in systematic theology, Braaten states as a corollary of this view, “All the meanings of the Word of God have one center and norm: the appearance of Jesus Christ in history.”⁸ This is a recovery of the understanding of scripture held by the reformers, as with Luther’s statement that “all of scripture ... is pure Christ.”⁹ The written Word is to be interpreted christologically, and “the medium of [God’s] revelation is completely incarnational.”¹⁰

Scripture is the Word of God in the words of humans—sinful and fallible humans. Because of this, Barth said, those writers “were capable and actually guilty of error in their spoken and written word” in expressing the miracle of God’s Word. To deny this, he argued, would be like saying that the sick who were miraculously healed by Jesus were not really ill.¹¹

Not all Christians will be willing to draw this implication from the human aspect of scripture. Some continue to hold, with Warfield, that the biblical writers were inspired by the Holy Spirit in such a way that “their words were rendered also the words of God, and, therefore, perfectly infallible.”¹² It is the last two words that are at issue here—or more precisely, it is a question of whether they follow from the fact that the words of the writers are indeed the words of God.

Fairly conservative theologians have come to recognize that scripture itself does not commit us to a belief in “inerrancy” in the sense that every statement of scripture, no matter how distantly related to its christological center, is factually correct in all details.¹³ “The true humanity of scripture,” Bloesch says, “involves a vulnerability to error and a limited cultural horizon because the writers lived in a particular time and place in history.”¹⁴ This does not require that every concept of inerrancy be abandoned. Pinnock, for example, defines it to mean “that the Bible can be trusted in what it teaches and affirms” and cites approvingly the fuller statement of Millard Erickson:

The Bible, when correctly interpreted in the light of the level to which culture and the means of communication had developed at the time it was written, and in view of the purposes for which it was given, is fully truthful in all it affirms.¹⁵

In order to appreciate such statements, we need to realize that not everything that is said in the Bible is “teaching” or “affirmation,” a point that James Barr has emphasized.¹⁶ When Jesus told a parable about the growth of the mustard plant (Mark 4:30–32), he was teaching about the kingdom of God, not the relative sizes of seeds. And while there is no reason to doubt Paul’s account of his early relationships with other Christians in Gal. 1:15–2:14, he is surely not “affirming” the details of his encounters with other

apostles in the same sense that he affirms that people are justified by faith in Christ in that letter.

Theologians who believe that inerrancy does not extend to all things in scripture will usually mention matters of science, but their references tend to be quite general. And when Barth says that “there can be no scientific problems, objections, or aids in relation to what Holy Scripture and the Christian church understand by the divine work of creation” or when Bloesch speaks favorably of fundamentalists’ “opposition to the myth of evolution,” we get the definite impression of an unwillingness to take major conclusions of science seriously in doing theology.¹⁷

In addition, emphasis on the human aspect of scripture, while important, does not go deep enough. We get further insight by considering the typical *modus operandi* of the God whose Word encounters us in scripture.

Kenosis

We began with the question of how scripture can truly be inspired by God if it assumes things about the world that we now know to be out-of-date or simply incorrect. We can answer this question adequately only if we know who the God is that we are talking about. General lists of divine attributes will not get us anywhere and may even exacerbate the problem. If God is understood to be omniscient, then God knows about the structure of the heavens and the way in which the universe, the earth, and living things originated.

But God has not made himself known in terms of philosophical attributes. Instead, he revealed himself in Christ Jesus

who, though he was in the form of God, did not regard equality with God as something to be exploited, but emptied himself, taking the form of a slave, being born in human likeness. And being found in human form, he humbled himself and became obedient to the point of death—even death on a cross. (Phil. 2:6–8)

The one who is “true God from true God” became fully human. That means more than just looking like other humans or having the same biochemical

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makeup. To be fully human means to live at a particular time and place, to be a person of a particular country and culture. The Word became male Jewish flesh in Palestine in the time of Pontius Pilate, speaking Aramaic and some Greek, and learning about the world in a Hellenistic Jewish culture under Roman occupation.

“But about that day or hour no one knows, neither the angels in heaven, *nor the Son*, but only the Father” (Mark 13:32, emphasis added). When Jesus said this, he indicated that there were things that he, the incarnate Son of God, did not know. Nor is this so only for recondite matters such as the timing of the parousia. When, in the story of the healing of the woman with an issue of blood, Jesus turns to the crowd following him and asks, “Who touched me?” (Luke 8:45), it was probably because (as C. S. Lewis comments¹⁸) “he really wanted to know.”

Jesus had deeper insight into relationships with the Father, his own and that of other people, than did his contemporaries.

All things have been handed over to me by my Father; and no one knows the Son except the Father; and no one knows the Father except the Son and anyone to whom the Son chooses to reveal him. (Matt. 11:27)

But this does not mean that he knew about the history of hominids in east Africa or electroweak unification. Orthodox christology holds that Jesus had a fully human as well as a divine mind. A model suggested by Thomas Morris of a large (perhaps infinite) computer linked to a smaller and finite one may help in picturing this.¹⁹ In such a situation, there will be information in the large computer which is not, at a given time, accessed by the smaller one. (The knowledge of the risen and ascended Lord Jesus now is not at issue here.)

It is sometimes argued that kenosis is relevant only to the saving work of Christ. In that case, it could be regarded as a temporary stratagem used for a specific purpose and ignored in other contexts. But if Christ is the fullest revelation of God, that view is inadequate. As Gordon Fee put it in commenting on the Philippians text, “in ‘pouring himself out’ and ‘humbling himself to death on the cross’ Christ Jesus has revealed the character of God himself.”²⁰

The concept of kenosis has been valuable in discussions of divine action.²¹ God is at work in all that happens in the world, cooperating with creatures in their actions. But the regularity of natural processes shows that God limits what is done through natural processes to what is in accord with the properties with which he has endowed creatures. From our standpoint, this means that God limits divine action to accord with the laws of physics—which themselves are God’s creation.

Different authors use the concept of kenosis in different ways; therefore, it is important to clarify what I mean by it. Paul’s use of the word in the Philippians passage implies that in becoming human, the Son of God limited himself to the human condition. But it is clear from the totality of Paul’s writings that he did not think that God was absent or inactive in the Christ event. In fact, he insists that “God was in Christ, reconciling the world to himself” (2 Cor. 5:19).

So when we speak of a kenotic aspect of divine action, we should mean that God is indeed present and active in the world but that God limits divine action to the capacities of creatures. This means also that kenosis cannot provide the sole model for divine action. It says, after all, what God does *not* do—act beyond the capacities of creatures—rather than what God does do. Kenosis only makes sense in conjunction with something like the concept of God’s cooperation with creatures in their actions.²²

This limitation of divine action should also be understood as something that God *chooses*. It is not a necessity imposed upon God by the God-world relationship, as in process theology.

Kenotic divine action means that God’s work in the world is concealed from scientific investigation. But this is not simply a way of protecting religious belief from science. It is demanded by the theology of the cross, and means that God’s ongoing creative work has a cruciform pattern.

The Kenosis of the Spirit

2 Timothy 3:16 says that “all scripture is inspired by God.” The Greek word used there, *theopneustos*,

literally “God-breathed,” points to the activity of the *hagios pneuma*, the Holy Spirit. In accord with this, the Nicene Creed says that the Holy Spirit “spoke through the prophets.” Christians have taken this to mean that not only the speeches of prophets in a narrow sense but also the writers and redactors of the whole of scripture were moved to those activities by the Third Person of the Trinity.

All three persons of the Trinity are involved in everything God does in the world, though particular activities may be especially associated with one or another of them. “The external works of the Trinity are undivided” (*Opera Trinitatis ad extra indivisa sunt*) is the old formula. If kenosis is a fundamental aspect of the divine character and the way God acts toward creation, then we should expect to find it in the distinctive works of the Holy Spirit. Simmons has discussed this in connection with Pannenberg’s idea of the Spirit as field, and the concept may be important in dealing with some aspects of evolution, for the Spirit is also said in the creed to be “Lord and giver of life.”²³

It is natural then to suggest that kenosis also characterized the Spirit’s work in moving the biblical writers. In fact, that is an implication of the parallel that we have noted between the Incarnation of the eternal Word and the inspiration of the written Word. Luther wrote that “Holy scripture is God’s word, written and (I may say) lettered and formed in letters, just as Christ is the eternal Word of God wrapped in humanity,” and this close parallel between inspiration and incarnation has recently been emphasized by Enns.²⁴ As the Son of God limited himself to the conditions of a human being in a particular culture and as God in his ongoing work in the world limits divine activity to what is within the capacities of creatures, so the Holy Spirit communicated to the biblical writers and redactors within the limitations of their times and cultures.

Our Bible was written within a period two to three thousand years ago in the cultures of the Ancient Near East and the Roman Empire of the first century. The knowledge of the physical world and human history in those cultures was much more limited than our knowledge of those matters today. Not everyone in those cultures was stupid or gullible in accepting ideas that we now see as incorrect. To say

that would be like criticizing Galileo because he did not discover quantum mechanics. There were people in the Ancient Near East who were interested in understanding the world around them, and while studies of mathematics and astronomy did not prosper in Israel as they did in Egypt and Babylon, the wisdom literature of Israel shows respect for such pursuits. (See, e.g., *Wisd. of Sol.* 7:15–22.) But people of that time simply did not know as much about the world as we do today.

The message of the first creation account in Genesis is that the God of Israel is the sovereign creator of the entire universe, that all creatures are fundamentally good, and that among them humans are given special privileges and responsibilities. It is a statement about God and the world’s relationship with God that is as true today as it was twenty-five hundred years ago. But in inspiring it, the Holy Spirit was apparently willing for the world itself to be pictured as people in Middle Eastern cultures of the time understood it.

The idea that some biblical texts are “accommodated” or “condescend” to the limited knowledge of readers has a long history. It goes back at least to Origen in the third century and was appealed to by, among others, Calvin.²⁵ It is important to be clear about who is doing the accommodating. There is no reason to think that the writer of Genesis 1 knew about biological evolution but condescended to the level of a less informed audience by speaking about special creations of living things. It is rather the Holy Spirit who limited the form of the divine message to the understanding of both the human writer and his audience. The term “accommodation” is not entirely adequate, however, because it suggests a mere temporary tactic. To speak of a kenotic aspect of inspiration is to recognize that this is one example of a general feature of God’s activity in the world.

Some might argue that truly “God-breathed” texts would communicate an up-to-date understanding of the world. But what should have replaced the waters above the heavens that are called upon to praise God in Ps. 148:4? For Christians in 1900, the aether resounding with God’s praises would have been up-to-date, but then Einstein made the aether superfluous. Today we might want to have tiny

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strings vibrating with the worship of their creator, but some theorists are now arguing that string theory is overrated. Those who want an up-to-date picture of the world may be asked “up to whose date?”

Calvin’s statement that “the Holy Spirit had no intention to teach astronomy”²⁶ has a corollary: God expected us to use our brains and our senses to figure out such things ourselves. God’s self-limitation is a gift that enables us to understand the world and live in it as responsible adults rather than as lazy students who want to look up the answers in the back of the book. By limiting divine action to accord with the true laws of physics and accommodating inspiration to cultural understandings of the world, God challenges us to gain better and better approximations to those laws. When we understand that, we will be thankful that the Bible does not freeze our knowledge of the world to that of the time of the biblical writers, that of Newton, or of today.

The Truth of Scripture

Christians may wonder how culturally conditioned and perhaps erroneous statements in scripture can be distinguished from theologically important truths. If the Holy Spirit did not mean to teach astronomy, how do we know what other things in the Bible are ones about which the Spirit did not intend to teach us?

A person who accepts Christ with a living faith will recognize the authority of the scriptures that bear witness to him. But that authority has to do with the purpose of the scriptures, not with biblical statements viewed apart from that purpose. Arguments such as “If we can’t believe that Jonah was swallowed by a big fish, why should we believe that Jesus rose from the dead?” are simply *non sequiturs*. Christian faith is not a matter of believing that Jesus is risen simply because it says that in the Bible.

But it is not always easy to disentangle the essential theological content in scripture from other material. That can be done fairly simply with the ideas about the structure of the heavens in Genesis 1, because what is said there about God and God’s relationship with the world does not depend on those ideas. God is the creator of the sky, however

the sky is understood. But some biblical statements raise more difficult problems.

It is tempting to think that we can make a sharp distinction to separate the theologically significant wheat from culturally conditioned chaff, but matters are not so simple. To begin with, not all the Bible’s culturally conditioned ideas about the world are wrong. More importantly, *everything* that is said there, things of great religious import and also those of no obvious theological significance, was to some extent influenced by the cultures in which the writers were raised and by their individual histories. To say that is simply to recognize that the people who were “moved by the Holy Spirit” (2 Pet. 1:21) were human beings.

Setting out general principles for making the necessary distinctions would require an extensive treatment—if it is even possible. Instead of attempting that here, let us consider a way of dealing with one problem that is especially difficult for many Christians, the issue of “death before the Fall.”

“Sin came into the world through one man, and death came through sin,” Paul says (Rom. 5:12), and “As all die in Adam, so all will be made alive in Christ” (1 Cor. 15:22). It seems clear that Paul believed that the physical death of humans is due to the sin of our first parents. In this, he shared the ideas of other Jews of his time, as we can see from, e.g., Wisd. of Sol. 1:16; 2:23–24.

We know, however, that creatures, including our hominid ancestors, had been dying for millions of years before those represented by Adam and Eve came on the scene. How can we take seriously the theological claim that Paul is making about sin and its consequences in light of what modern research into the history of life on Earth has told us?

When Paul said that death came through sin, he had the ending of biological life in view. But in our present condition, biological death cannot be separated from spiritual death, for biological death has powerful affects that we cannot avoid. Jonathan Edwards expressed this starkly.

Death temporal is a shadow of eternal death. The agonies, the pains, the groans and gasps of death, the pale, horrid, ghastly appearance of the corps, its being laid in the dark and silent grave, there

putrifying and rotting and becoming exceeding loathsome and being eaten with worms (Isa. 66:24), is an image of the misery of hell. And the body's continuing in the grave, and never rising more in this world, is to shadow forth the eternity of the misery of hell.²⁷

We can, however, consider the possibility that death would not have to be that way – that biological death could be seen simply as a transition to a future life. C. S. Lewis's picture of the deaths of the unfallen Martians in *Out of the Silent Planet* is worth noting here.²⁸

For Christians, the most serious aspect of death is the threat of separation from God, which is sin. It is finally sin that makes death terrible, "the last enemy." Death produces not just the affects that have been mentioned but also fear of judgment and loss of God. Those who live biologically but without God already partake of death in an important sense. Ephesians 2:1-5 is a classic statement of this theme. It is this condition that can be referred to as "spiritual death."

We look back over the history of life on earth as people who have lived our whole lives in an atmosphere pervaded by sin. We see the dying that has taken place in evolutionary history, and especially that of humans, as more than just stopping of biological machinery. It is not possible, especially for those who have been confronted and convinced by God's word, to see it as a purely physical phenomenon, separated from spiritual death.

In other words, sin gives new meaning to death that occurred from the beginnings of humanity and even before that. The present can change the *meaning* of the past, just as the American Civil War affects the meaning of much of the country's previous history.²⁹ Human sin did not kill the dinosaurs but it causes us to view their demise differently than we would in a sin-free world.

When Paul spoke about death as a consequence of sin he meant death as a totality – biological death with all the fears we have of it and in light of the separation from God that is sin. It was biological plus spiritual death that he had in view, although he did not separate the two concepts. He was wrong about biological death *simpliciter* being a consequence of human sin but right in seeing that it is sin

that makes death an enemy (1 Cor. 15:26), a threat that can be averted only by God. And in inspiring his writings, the Holy Spirit was apparently willing to accommodate to the incorrect aspect of his belief. The bottom line is that Paul expresses the important link between sin and spiritual death.

Taking Kenosis Seriously

Finally, I want to take note of Montgomery's recent criticisms of a review by Lamoureux in connection with our topic.³⁰ The previous section of this article has already addressed his first two criticisms and here I focus on the third. This begins with the claim that "accommodationist approaches to Scripture are never justified by an appeal to *kenosis*." Montgomery continues, "Of course, in becoming man, God took on human characteristics." That is, however, an inadequate statement of the matter. Jesus did not simply take on "human characteristics" but became fully human. That means, as I emphasized earlier, not just having our physical makeup or appearance but being born and growing up as a member of a particular human culture.

Montgomery argues that everything Jesus said was without error so that the parallel between Incarnation and inspiration cannot be used to deal with putative errors in scripture. Jesus, he argues, did not "simply accommodate[d] himself to the fallible spiritual ideas of his time." Neither Lamoureux nor I think that Jesus's ministry can be understood "simply" as accommodation, and fallible *spiritual* ideas are not at issue here.

A more serious problem with this argument is that there is good reason to think that some of Jesus's sayings *were* accommodated to fallible cultural ideas. Attribution of texts in Torah to Moses is the most obvious example.³¹ By the time of Jesus, it was common Jewish belief that the whole of Torah was written by Moses. Since Jesus's human understanding was limited, it would have been natural for him to accept that traditional idea. But modern critical scholarship and just alert reading without preconceptions about authorship³² make it quite doubtful that the whole of Torah in its present form comes directly from Moses.

Some Christians will recoil from the suggestion that Jesus could be mistaken about anything. "If he

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is really the Son of God," they may ask, "how could he deceive us?" Very simply, he did not. Deception involves a deliberate attempt to mislead or misinform someone. Making an erroneous statement is not in itself deception. Confusion between these two concepts is what lies behind many arguments for the absolute inerrancy of scripture.³³

"Does this mean that Jesus taught error?" No, we have already referred to the question about what is "taught" in scripture. When Jesus referred to Moses as the author of the law on divorce (Mark 10:2-9), he was not "teaching" about the authorship of Deuteronomy but about God's intention for marriage. (And *en passant*, his argument about divorce is that God accommodated his law to human weakness!) The mention of Moses was simply a way of referring to an authoritative text on the matter. A classical scholar today who refers to something in the Iliad as being from "Homer" is not "teaching" that it was actually written by an ancient Greek who bore that name.

One can, of course, argue that Moses did write all of the Pentateuch, and many of the dominant claims of modern biblical scholarship are not as certain as scientific knowledge about the big bang or evolution. But we have to deal honestly with the data. Most Christian arguments for Mosaic authorship will at some point appeal to the idea that Jesus "taught" it, thus making circular any attempt to argue that he was never mistaken in connection with the texts in question.

The fundamental point in all of this is not one or another statement about the natural sciences or human history. It is rather that the inspiration of scripture, like the Incarnation and God's ongoing work in creation, is kenotic. The Bible is both fully human writing and the Word of God, just as Jesus is both fully human and fully divine. The scientific and historical limitations of scripture should not be seen as embarrassments which must be explained away but as a consequence of the fullness with which God enters into the history of our world. ✕

Notes

¹This is a revised and expanded version of a paper, "Kenosis and the Inspiration of Scripture," presented at the annual meeting of the American Scientific Affiliation in Naperville, Illinois, in 2011. I am grateful to Denis Lamoureux for

discussions and suggestions on the topic and to reviewers of an earlier draft of this article for this journal.

²For illustrations of ancient near eastern cosmology, see Denis O. Lamoureux, *Evolutionary Creation* (Eugene, OR: Wipf & Stock, 2008), 109; Peter Enns, *Inspiration and Incarnation* (Grand Rapids, MI: Baker Academic, 2005), 54.

³For a fuller discussion of this and other aspects of ancient science in the Bible, see Lamoureux, *Evolutionary Creation*, chap. 4. The brief remarks on "Myth and Science" in Kenton L. Sparks, *Ancient Texts for the Study of the Hebrew Bible* (Peabody, MA: Hendrickson, 2005), 337, are also helpful.

⁴R. Laird Harris, Gleason L. Archer, Jr., and Bruce Waltke, *Theological Wordbook of the Old Testament*, vol. 2 (Chicago, IL: Moody, 1980), s.v. רָאָה (*rāqā*).

⁵George L. Murphy, "Couldn't God Get It Right?," <http://archive.elca.org/faithandscience/covalence/story/content/06-03-15-murphy.pdf>

⁶Evidence for these theories and a theological context is presented in Keith B. Miller, ed., *Perspectives on an Evolving Creation* (Grand Rapids, MI: Wm. B. Eerdmans, 2003).

⁷Karl Barth, *Church Dogmatics* I.1 and I.2 (Edinburgh: T&T Clark, 1935 and 1956). Pages 457-740 of I.2, "Holy Scripture," is particularly relevant for our discussion.

⁸Carl E. Braaten, "Prolegomena to Christian Dogmatics" in Carl E. Braaten and Robert W. Jenson, eds., *Christian Dogmatics*, vol. 1 (Philadelphia, PA: Fortress, 1984), 75.

⁹Martin Luther, "Treatise on the Last Words of David" in *Luther's Works*, vol.15 (St. Louis, MO: Concordia, 1972), 339. For a discussion of Luther's position, see, e.g., G. C. Berkouwer, *Holy Scripture* (Grand Rapids, MI: William B. Eerdmans, 1975), 93-7.

¹⁰Braaten, "Prolegomena to Christian Dogmatics," 75. This does not mean that God is personally united with the Bible as he is with human nature in Christ. Cf. Robert Preus, *The Inspiration of Scripture* (Mankato, MN: Lutheran Synod, 1955), 201-5.

¹¹Barth, *Church Dogmatics* I.2, 528-9.

¹²Benjamin B. Warfield, *The Inspiration and Authority of the Bible* (Philadelphia, PA: Presbyterian and Reformed, 1948), 420. A useful survey and critique of the views of Warfield and other evangelicals, as well as those of the Roman Catholic Karl Rahner, is Kern Robert Trembath, *Evangelical Theories of Biblical Inspiration: A Review and Proposal* (New York: Oxford, 1987).

¹³E.g., Clark H. Pinnock, *The Scripture Principle* (San Francisco, CA: Harper & Row, 1984) and Donald G. Bloesch, *Holy Scripture: Revelation, Inspiration and Interpretation* (Downers Grove, IL: InterVarsity, 1984).

¹⁴Bloesch, *Holy Scripture*, 39.

¹⁵Pinnock, *The Scripture Principle*, 78-9.

¹⁶James Barr, *Fundamentalism* (Philadelphia, PA: Westminster, 1978), 72-9.

¹⁷Karl Barth, *Church Dogmatics* III.1 (Edinburgh: T&T Clark, 1958), ix; Bloesch, *Holy Scripture*, 98.

¹⁸C. S. Lewis, "The World's Last Night" in *Fern-Seed and Elephants* (Glasgow: William Collins Sons, 1975), 72. Lewis's fuller statement is germane:

It would be difficult, and, to me, repellent, to suppose that Jesus never asked a genuine question, that is, a question to which he did not know the

answer. That would make of his humanity something so unlike ours as scarcely to deserve the name. I find it easier to believe that when he said "Who touched me?" (Luke 8:45) he really wanted to know.

As the title of the essay suggests, Lewis addresses in it Jesus's ignorance of the time of the parousia.

¹⁹Thomas V. Morris, *The Logic of God Incarnate* (Ithaca, NY: Cornell, 1986), 88–107 and 153–62.

²⁰Gordon D. Fee, *Paul's Letter to the Philippians* (Grand Rapids, MI: William B. Eerdmans, 1995), 196.

²¹George L. Murphy, *The Cosmos in the Light of the Cross* (Harrisburg, PA: Trinity Press International, 2003), especially chap. 6.

²²Ibid.

²³Ernest L. Simmons, "Toward a Kenotic Pneumatology: Quantum Field Theory and the Theology of the Cross," *CTNS Bulletin* 19, no. 2 (1999): 10–16; Murphy, *The Cosmos in the Light of the Cross*, 119–20.

²⁴*Die Heilige Schrift ist Gottes wort, geschrieben und (das ich so rede) gebuchstabet und in buchstaben gebildet, Gleich wie Christus ist das ewige Gottes wort, in die menscheit verhullet.* Martin Luther, *D. Martin Luthers Werke: Kritische Gesamtausgabe*, 48. Band (Weimar: Hermann Böhlau, 1927), spelling is from 1927 edition, 31; Enns, *Inspiration and Incarnation*.

²⁵Bruce Vawter, *Biblical Inspiration* (Philadelphia, PA: Westminster, 1972), 40–2; Ford Lewis Battles, "God was

Accommodating Himself to Human Capacity," *Interpretation* 31 (1977): 19–38; Paul H. Seely, "The Date of the Tower of Babel and Some Theological Implications," *Westminster Theological Journal* 63 (2001): 15–38.

²⁶John Calvin, *Commentary on the Psalms*, ed. James Anderson (Grand Rapids, MI: Baker, 1981), 184.

²⁷Jonathan Edwards, *Images or Shadows of Divine Things*, ed. Perry Miller (Westport, CT: Greenwood Press, 1977), 43.

²⁸C. S. Lewis, *Out of the Silent Planet* (New York: Macmillan, 1965), 158–9.

²⁹George L. Murphy, *The Trademark of God* (Wilton, CT: Morehouse-Barlow, 1986), 61–2.

³⁰John Warwick Montgomery, "A Reply to Lamoureux's Review of Beale's *The Erosion of Inerrancy in Evangelicalism*," *Perspectives on Science and Christian Faith* 62, no. 4 (2010): 302–3.

³¹Denis Lamoureux, in "Lamoureux' Response to Montgomery," *Perspectives on Science and Christian Faith* 63, no. 1 (2011): 72, gives further examples.

³²E.g., Gen. 12:6 and 13:7 were apparently written, or at least edited, after the conquest; Num. 22:1 and 32:32 and Deut. 1:1 indicate that the writer was in Canaan, on the west side of the Jordan.

³³Cf. Berkouwer, *Holy Scripture*, 181–3.

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Article

Darwinian Theological Insights: Toward an Intellectually Fulfilled Christian Theism—Part II

Evolutionary Theodicy and Evolutionary Psychology

Denis O. Lamoureux

According to famed atheist Richard Dawkins, “Darwin made it possible to be an intellectually fulfilled atheist.” Many today follow Dawkins and assume that Charles Darwin ushered in a dysteleological view of nature with no ultimate plan or purpose and no place for God. However, an examination of the primary historical literature – Darwin’s private Notebooks on Transmutation (1837-1839), his two most important books, Origin of Species (1859) and Descent of Man (1871), and his personal correspondence with colleagues – reveals that the father of evolutionary theory thought deeply about the religious implications of his science. In challenging Dawkins and popular belief, I will glean theological insights from Darwin’s writings to propose the provocative anti-thesis that Darwin made it possible to be an intellectually fulfilled Christian theist.

In the first of this two-part article which was published in June, we examined Darwin’s views on (1) divine creative action and (2) his experience with and understanding of intelligent design in nature. In this second part, I will review some of his thoughts on (3) theodicy and his personal wrestling with the problem of evil and suffering, and his views on (4) the origin of religion and morality in the light of evolutionary psychology.

In Part I of this article, I presented historical evidence from Charles Darwin’s vast literary collection of notes, letters, and books that dealt with divine creative action and intelligent de-

sign in nature in order to glean theological insights.¹ Inspired by the proclamation of Richard Dawkins that “Darwin made it possible to be an intellectually fulfilled atheist,” I proposed the provocative thesis that Darwin makes it possible to be an intellectually fulfilled Christian theist.² Making no attempt whatsoever to “Christianize” Darwin, it was clear that he offers valuable concepts that are consonant with Christian theism: in particular, a Christian approach to evolution known as “evolutionary creation,” which asserts that the Father, Son, and Holy Spirit created the universe and life, including human life,

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through an ordained, sustained, and design-reflecting evolutionary process.³

In his two most famous books, *Origin of Species* (1859) and *Descent of Man* (1871), Darwin provides Christians a view of divine creative action that features a parallel between embryological development in the womb and evolutionary origins of all living organisms on earth.⁴ In other words, this Darwinian insight assists Christian theists to understand that the Lord creates life through natural processes, and that there is no need to posit a tinkering and micro-managing god-of-the-gaps. Darwin also presents powerful evidence that throughout his life nature often impacted him powerfully, and this encounter led him toward the belief in intelligent design. Not to be confused with the current reinterpretive spin on the notion of design by the so-called “Intelligent Design Movement/Theory,” Darwin experienced “this immense and wondrous universe” and was “compelled to look to a First Cause having an intelligent mind in some degree analogous to that of man.”⁵ For Darwin, design is not rooted in purported “irreducibly complex” structures requiring interruptive acts of divine intervention for their origin. Instead, it was the overall beauty, complexity, and functionality in the world that struck him “with overwhelming force.”⁶ Such a notion is consonant with the traditional Christian belief in natural revelation.

In this second part of the article, I will examine two topics that Christian theists rarely entertain—evolutionary theodicy and evolutionary psychology. If we are to come to terms *fully* with biological evolution, then we need to deal directly with these foundational issues. And interestingly, Darwin offers us some valuable theological insights in order to begin their integration into our faith.

Insights into an Evolutionary Theodicy

The problem of evil and suffering in the world is the greatest challenge to the belief in a personal God who is all-loving and all-powerful. As Hans Küng states, it is “the rock of atheism.”⁷ In recent years, many have clamored over the death of Darwin’s ten-year-old daughter Annie in 1851 in order to find an event that destroyed any belief in God he may have had.⁸

Indeed, the death of a child is one of the greatest traumas anyone can experience, and as Darwin records in his *Autobiography* (1876), “We have suffered only one very severe grief in the death of Annie.”⁹ In addition, commentators like Richard Dawkins trip over themselves in appealing to Darwin’s 1856 remark to J. D. Hooker, “What a book a Devil’s chaplain might write on the clumsy, wasteful, blundering low & horridly cruel works of nature!”¹⁰ In fact, Dawkins entitles a book of essays *A Devil’s Chaplain: Reflections on Hope, Lies, Science and Love* and opens with an essay with the same title.

But is Darwin’s approach to the problem of evil and suffering that simplistic? Did he see and experience evil and suffering in both his private life and the natural world, and then reject a personal God? As noted in Part I, Darwin records in his *Autobiography* that he was a theist and that he embraced intelligent design while writing the *Origin of Species* in the late 1850s.¹¹ In other words, his theism post-dates the death of Annie and the Devil’s chaplain comment to Hooker.¹² Thus, a more nuanced understanding of Darwin’s approach to theodicy is in order. In particular, I have observed a pattern in his dealings with this issue in that he juxtaposes evil and suffering against intelligent design, leaving the impression that the latter trumps the former. I am not convinced that Darwin is fully cognizant that he is formulating a specific theodicy in these passages, but instead that he is simply reacting to the challenge that evil and suffering pose to his generalized or nontraditional theism.¹³

My first example of the juxtaposition of evil/suffering against design appears in Darwin’s most famous book. In the last two sentences of the *Origin of Species*, he concludes,

Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone on cycling according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.¹⁴

Darwin does not cower from the reality of the violence and carnage in nature, but it seems to be tempered,

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or better justified, by the origin of “the most exalted object[s]” and “forms most beautiful and most wonderful.” This language describing the fruits of evolution is clearly consonant with the notion of intelligent design. In fact, an early draft of this passage from the 35-page Sketch (1842) has Darwin include that “such laws should exalt our notion of the power of the omniscient Creator.”¹⁵ It is also notable that he changed “originally breathed” to “breathed by the Creator” in the second edition of the *Origin of Species* in 1860, and this emendation runs through to the sixth edition in 1872. In other words, despite the reality of natural evil and suffering in the evolutionary process, a Creator remains firmly in place over Darwin’s universe.

A second example of the theodical juxtaposition appears in Darwin’s well-known letter to Asa Gray, dated 22 May 1860. In response to claims that some deemed the *Origin of Species* an atheistic work, Darwin firmly asserts two times, “I had no intention to write atheistically ... Certainly I agree with you that my views are not at all necessarily atheistical.”¹⁶ With regard to evil and suffering in nature, Darwin laments,

But I own I cannot see, as plainly as others do, and as I should wish to do, evidence of design and beneficence on all sides of us. There seems to me too much misery in the world. *I cannot persuade myself that a beneficent and omnipotent God would have designedly created the Ichneumonidae with the express intention of their feeding within the bodies of Caterpillars, or that a cat should play with mice.* Not believing this, I see no necessity in the belief that the eye was expressly designed.¹⁷

Clearly, Darwin was still laboring under the influence of his Cambridge education and William Paley’s premises—design and beneficence are conflated together.¹⁸ And it is also evident that his sensibilities were offended by the fact that a wasp lays its eggs in a caterpillar, and as the eggs develop, they gut the creature to its death. It is worth noting that if the italicized sentence above is ripped out of the letter and coupled with the devil’s chaplain comment, then one gets the impression that evil and suffering in nature led Darwin to reject design and God. And yes, of course, this is exactly the fundamentalist proof-text “hermeneutic” that Richard Dawkins employs in his opening essay of *A Devil’s Chaplain*.¹⁹

However, a judicious use of Darwin’s 22 May 1860 letter to Gray reveals that immediately following the block quote above, in the very same paragraph, Darwin writes,

On the other hand, I cannot anyhow be contented to view this wonderful universe, and especially the nature of man, and to conclude that everything is the result of brute force.²⁰

In other words, Darwin is definitely *not* embracing the dysteleological worldview of Dawkins. And to repeat the observation of the Darwin Correspondence Project presented in Part I of this article, “The popular view of Darwin as purely secularist, or even atheist, is based on a highly selective reading of the sources.”²¹ But I am less charitable. This example of Dawkins misusing the words of Charles Darwin is not only shameful and incompetent; it is deceitful manipulation of Darwin’s writings by a notorious polemicist preacher of an atheistic gospel.²²

And there is more in this letter. Immediately following the sentence above ending with the words “brute force,” and still in the same paragraph, Darwin states,

I am inclined to look at everything as resulting from designed laws, with the details, whether good or bad, left to the working out of what we may call chance. Not that this notion *at all* satisfies me.²³

Clearly, Darwin is juxtaposing the natural evil seen with the *Ichneumonidae* against his *experience* of design mediated through “this wonderful universe.” His lack of satisfaction with this view of design is undoubtedly because he still *understands* design as Paleyan perfect adaptation in 1860.²⁴ Darwin closes this letter to Gray with even another design model. He speculates,

The lightning kills a man, whether a good one or a bad one, owing to excessively complex action of natural laws. A child (who may turn out an idiot) is born by the action of even more complex laws, and I can see no reason why a man, or other animal, may not have been aboriginally produced by other laws, and that all these laws may have been expressly designed by an omniscient Creator, who foresaw every future event and consequence.²⁵

The implication in this second approach to design is that humans fall short epistemologically and that design is only fully understood from the perspective of an all-knowing God.²⁶ In order to be fair

to Darwin's views, it must be underlined that this letter to Gray is marked by frustration and confusion, as he closes, "But the more I think the more bewildered I become; as indeed I have probably shown by this letter."²⁷ Yet my point remains—when dealing with natural evil, Darwin reacts by juxtaposing his experience of intelligent design in nature to this challenge.

Darwin's approach to theodicy is further developed in the section entitled "Religious Belief" in the *Autobiography* (1876). He appeals to suffering in nature as argument against the existence of God.

A being so powerful and so full of knowledge as a God who could create the universe, is to our finite minds omnipotent and omniscient, and it revolts our understanding to suppose that his benevolence is not unbounded, for what advantage can there be in the suffering of millions of lower animals throughout almost endless time? This very old argument from the existence of suffering against the existence of an intelligent first cause seems to me a strong one.²⁸

But following his pattern on the issue of theodicy, Darwin immediately juxtaposes this passage against his two design arguments—the "psychological" and "rational" design arguments, previously mentioned in Part I of this article. In addition, Darwin puts natural evil and suffering in perspective. Countering those who "are so much impressed with the amount of suffering in the world," he asserts,

According to my judgment *happiness* decidedly prevails ... all sentient beings have been formed so as to enjoy, as a general rule, *happiness* ... The sum of such pleasures as these, which are habitual or frequently recurrent, give, as I can hardly doubt, to most sentient beings an excess of *happiness* over misery, although many occasionally suffer much.²⁹

Remarkably, Darwin offers a picture of the world that is far from the bleak and pitiless view embraced by dysteleological evolutionists like Dawkins. Though evil and suffering in nature certainly exist, Darwin concludes that overall "happiness decidedly prevails."

In sum, coming to terms with theodicy is a never-ending process for the Christian theist, since new challenges always appear on the horizon. A common theological strategy for dealing with the problem of evil and suffering is to embrace an intellectual tension between *Deus revelatus* (God who reveals) and

Deus absconditus (God who hides).³⁰ In other words, this is a world that points both toward God and away from him. This insight is clearly implicit in Darwin's juxtaposition of natural evil and suffering against the reflection of intelligent design in nature. And since Darwin's rebuttal to his rational design argument falls short because of circularity,³¹ coupling his experience of design with his belief that "most sentient beings [enjoy] an excess of happiness over misery," leads to the conclusion that relationship between divine noticeability and divine concealment in nature leans markedly in the direction of a *Deus revelatus*. Such an approach is one way toward structuring a Christian theology.³²

Insights into Evolutionary Psychology

As noted in Part I, Darwin had fully accepted human evolution during his intensely productive two-year period in the late 1830s when he outlined the theory of evolution. But he was cautious not to reveal his belief publicly. In an 1857 letter to A. R. Wallace, the codiscoverer of natural selection, he responds to the question of whether he would deal with human evolution in his forthcoming *Origin of Species*.

I think I shall avoid [the] whole subject, as [it is] so surrounded with prejudices, though I fully admit that it is the highest & most interesting problem for the naturalist.³³

Yet Darwin teased readers in his famed book,

In the distant future I see open fields for far more important researches. Psychology will be based on a new foundation, that of the necessary acquirement of each mental power and capacity by gradation. Light will be thrown on the origin of man and his history.³⁴

To be sure, human evolution is the "highest & most interesting problem" not only for the scientist, but also for the theologian. The implications of evolutionary psychology for Christian theology are substantial. But regrettably few Christians enter this academic discipline, which is usually dripping with a nauseating dysteleological metaphysic and positivistic methodology. Take, for example, the father of modern evolutionary psychology, E. O. Wilson. He asks,

[T]he ultimate question: Do religion and moral reasoning also have a biological origin? Are they the products of evolution? So stated, the meaning

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of spiritual authority breaks into *two* competing possibilities, *two* competing hypotheses that now appear susceptible to empirical testing. *Either* humanity is guided by moral principles that were formulated outside human existence, in other words by divine will or natural law, *or* else humanity has evolved these principles on its own during its long genetic and cultural history ... The naturalistic hypothesis arising from scientific knowledge holds that the powerful emotions of religious experience are entirely neurobiological, that they evolved as part of the programmed activity of the brain favoring survival of the tribe and individual.³⁵

It is painful to see a world-class Harvard professor so deeply entrenched in a simplistic science vs. religion dichotomous ditch. Following a similar crude approach to the evolutionary psychology of religion, Dawkins contends, “It is as if the human brain were specifically designed to misunderstand Darwinism and find it hard to believe.”³⁶

Is there not, however, a middle ground? To recast the words of Dawkins, could Christian theists not argue,

It is as if the human brain were specifically designed *by God* [through a teleological evolutionary process] to *understand* Darwinism [more accurately, atheistic or dysteleological evolution] and find it hard to believe?³⁷

In fact, Darwin himself provides support for such a view. As seen previously in Part I, found in June 2012 *PSCF*, he asserts:

I cannot think that the world, as we see it, is the result of chance.³⁸

The birth both of the species and of the individual are equally parts of that grand sequence of events, which *our minds refuse* to accept as the result of blind chance.³⁹

This follows from the extreme difficulty or rather *impossibility of conceiving* this immense and wondrous universe, including man with his capacity of looking backwards and far into futurity, as a result of blind chance or necessity.⁴⁰

In light of these passages, it is once again painfully obvious that a world-class atheist seems to be unaware of the primary literature on Darwin’s beliefs—this time with simple terminology. The so-called “Darwinism” that Dawkins eisegetically forces upon Charles Darwin is not at all the view embraced by

Darwin. The historical record is clear: Throughout his life, Darwin rejected the belief that the world was the result of blind chance. Period.

In sharp contrast to Wilson and Dawkins, Darwin offers some intriguing insights into the origin of religion from the perspective of evolutionary psychology. In the M Notebook, he accepted that “the innate knowledge of creator” was “a necessary integrant part of his [the Creator’s] most magnificent laws.”⁴¹ Following this approach, it could be argued that natural theology originated through a teleological evolutionary process. But Darwin later modified this position in the *Descent of Man*. In the section entitled “Belief in God—Religion,” he asserts, “There is no evidence that man was aboriginally endowed with the ennobling belief in the existence of an Omnipotent God.” Instead, he contends,

If, however, we include under the term “religion” the belief in unseen or spiritual agencies, the case is wholly different; for it seems to be universal with the less civilized races. Nor is it difficult to comprehend how it arose. As soon as the important faculties of the imagination, wonder, and curiosity, together with some power of reasoning, had become partially developed, man would naturally crave to understand what was passing around him, and would have vaguely speculated on his own existence ... The belief in spiritual agencies would easily pass into the belief in the existence of one or more gods.

In other words, instead of humans being endowed directly with the *actual belief in God*, they were gifted indirectly with the *capability to come to the belief in God*.⁴⁴ Such an evolutionary approach is still consistent with the Christian notion of natural revelation.

Darwin’s evolutionary psychology also extended to human morality. During the late 1830s, he speculated in the M Notebook about the origin of evil human behavior. In a fascinating entry, he records,

Our descent, then, is the origin of our evil passions!! The Devil under the form of Baboon is our grandfather!⁴⁵

Darwin’s use of the theological category of “the Devil” invites the intriguing notion that the traditional doctrine of original sin might be reformulated within an evolutionary context. More specifically, the incessant human compulsion to sin, which as traditionally understood is passed down through the generations,

may well have its roots in the evolutionary history of men and women. However, Darwin balanced these “lower impulses or desires” with what he termed “the social instincts,” and which he believed were behind human conscience and moral sense. In the *Descent of Man*, he argues that the social instincts “no doubt were acquired by man as by the lower animals for the good of the community,” and that they would “have served him at a very early period as a rude rule of right and wrong.”⁴⁶ With the gradual advance of “active intellectual powers and the effects of habit,” the social instincts would “naturally lead to the golden rule, ‘As ye would that men should do to you, do ye to them likewise,’ and this lies at the foundation of morality.”⁴⁷ From this perspective, the apostle Paul’s references to human “conscience” and the “law written on the hearts of men” (Rom. 2:14) could be seen as arising through teleological evolution. In other words, moral natural revelation might be the result of a natural process that was ordained and sustained by the Lord.

Another significant Pauline passage may also be explained by a Darwinian theological insight. Darwin recognized that humans have both “social instincts” and “lower impulses and desires,” and the interaction of these inevitably leads to conflict. In the *Descent of Man*, he notes, “It is not surprising that there should be a *struggle* in man between his social instincts, with their derived virtues, and his lower, though momentary stronger, impulses or desires.”⁴⁸ Of course, Christians will be quick to know where I am heading—Paul’s struggle with his flesh in Romans 7.⁴⁹

I do not understand what I do. For what I want to do, I do not do; but what I hate, I do. And if I do what I do not want to do, I agree that the law is good. As it is, it is no longer I myself who do it, but it is sin living in me. I know that nothing good lives in me, that is, in my sinful nature [Greek *sarx*: flesh] ... So I find this law at work: When I want to do good, evil is right there with me. For in my inner being I delight in God’s law; but I see another law at work in the members of my body, waging war against the law of my mind and making me a prisoner of the law of sin at work with my members. What a wretched man I am! Who will rescue me from this body of death? ... So then, I myself in my mind am a slave to God’s law, but in the sinful nature [Greek *sarx*: flesh] a slave to the law of sin. (Rom. 7:15–18a, 21–24, 25b, NIV)

From a Darwinian perspective, Paul’s struggle with the flesh clearly points to the “lower impulses and desires” of his evolutionary heritage still encased within him.⁵⁰ At the same time, the apostle recognizes another internal component, his “mind” and “inner being,” which align well with Darwin’s notion of the “social instincts, with their derived virtues.” Though Paul had no idea of his evolutionary past, he nevertheless experienced the reality of these conflicting instincts at a phenomenological level. Such is the human condition. But who will rescue us from our evolutionary past? Paul answers, “Thanks be to God—through Jesus Christ our Lord!” (Rom. 7:25). More specifically, the apostle admonishes, “Clothe yourselves with the Lord Jesus Christ, and do not think about how to gratify the desires of the sinful nature [Greek *sarx*: flesh]” (Rom. 13:14).⁵¹

Discussion and Conclusion

Charles Darwin offers Christian theists numerous theological insights. First and foremost, he never viewed biological evolution as a dysteleological process that was the “result of blind chance or necessity.”⁵² The Darwin of Richard Dawkins is clearly not the Darwin of history, but a Darwin created in the image of Dawkins. As well, Darwin’s embryology-evolutionary analogy, found in his two most important books, the *Origin of Species* (1859) and the *Descent of Man* (1871), is particularly helpful to Christian theists in their coming to terms with evolution.⁵³ I know that this is the case, both personally in my own voyage from young earth creation to evolutionary creation,⁵⁴ and also professionally with evangelical students in my science-religion courses at a major public university. Moreover, this analogy can be extended to the origin of human spiritual realities. For example, when does an individual first bear the Image of God? Or when does one first become a sinner? I doubt that this occurs at fertilization and entails a punctiliar interventionistic event. Rather, I suspect that though it occurs, it is ultimately mysterious and beyond human comprehension. So, too, with the entrance into the world of the Image of God and human sinfulness during human evolution—both occur gradually and mysteriously.⁵⁵

Darwin’s wonderful candor in *Descent of Man* with regard to his overstating the power of natural selection, coupled with his openness late in life to the

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possibility of an unknown “innate tendency to perfectibility,”⁵⁶ invites a reevaluation of the all too common view that human evolution is dysteleological. The late Stephen Jay Gould famously stated,

[O]ur origin is the product of massive historical contingency, and we would probably never arise again even if the life’s [video] tape could be replayed a thousand times.⁵⁷

However, an equally competent paleontologist, Simon Conway Morris, defends that the ubiquity of convergent evolution points toward “the emergence of something like ourselves a near-inevitability.”⁵⁸ Stated another way, it is as if the laws of nature were loaded from the beginning for humans to evolve, pointing toward Someone who set up this natural process.

Intelligent design in nature is without a doubt one of the most dominant themes in Darwin’s religious thinking. From his earliest musings on the topic on board *HMS Beagle* to the last year of his life, Darwin could not free himself from viewing “endless forms most beautiful and most wonderful” as reflecting the design of “a First Cause having an intelligent mind in some degree analogous to that of man.”⁵⁹ Moreover, Darwin did not succumb to the false dichotomy of design vs. evolution, the central dogma propagandized by the Intelligent Design Movement. Instead, he offers to Christian theists the insight that evolution may well reflect design. Recently, world-class scholars who explore this provocative notion include Michael Denton in *Nature’s Destiny: How the Laws of Biology Reveal Purpose in the Universe* (1998), the twenty-five contributors of papers in John D. Barrow, Simon Conway Morris, Stephen J. Freeland, Charles L. Harper, Jr., eds., *Fitness of the Cosmos for Life: Biochemistry and Fine-Tuning* (2008), and Alister McGrath in his 2009 Gifford Lectures, published as *A Fine-Tuned Universe: The Quest for God in Science and Theology* (2009). It is important to qualify that none of these authors claim that the exquisite laws in nature provide a *proof* for the existence of a Creator. Rather, evolutionary processes point to, argue for, or at least resonate with the *belief* in an Intelligent Designer.

However, I extend the intelligent design argument further than these authors, to include human accountability and sinfulness in my design model.⁶⁰ Impacted by the “without excuse” clauses in both

Rom. 1:20 and the apocryphal Wisd. of Sol. 13:8, I contend that the creation provides a more than sufficient revelation for the existence of God, and that humans are more than proficient in understanding this nonverbal revelation that is inscribed into the very fabric of the universe. To update the language of Wisd. of Sol. 13:9,

For if they had the power to know so much that they could investigate the world, *including the ability even to open the cell to see its breathtaking “complex elegance” and “elegant efficiency,”* how did they fail to find sooner the Lord of these things?⁶¹

My answer to this question is simple: sinfulness.⁶² Similar to the picture of Jesus knocking at the door in Rev. 3:20, the wordless revelation in nature knocks at the door of our mind. And even if the knocking “comes with overwhelming force,” to quote Darwin late in life,⁶³ the Lord has gifted us with the freedom to decide whether we open that door and sup with the Designer.

Darwin’s approach to theodicy is intriguing. As I suggested, it seems to me that he was not fully cognizant that he was actually formulating a theodicy when he juxtaposed evil and suffering in the world against intelligent design. This appears to be simply a reactionary move on his part. Nevertheless, this Darwinian insight thrust me back to the Book of Job.⁶⁴ This masterfully crafted literary piece is structured on a similar juxtaposition. The opening chapters see Job lose his livestock, his children killed, and him stricken by a debilitating disease. From chapters three to thirty-seven, his friends attempt *ad nauseam* to present a theodicy justifying his situation. Then, in chapters 38–41, God speaks. This discourse could certainly be classified as an intelligent design argument, whereby the Creator simply points out to Job the marvels of the creation. It is significant to note that God never gives Job a verbal theodicy. Instead, he offers a nonverbal response, which was already inscribed in nature. And that response can be verbalized with God stating, “I am the Creator of the world and I am Lord over everything, including your pain and suffering.”

Darwin was no stranger to personal pain and suffering. In May of 1838, he fell ill and, for most of his life, endured gastrointestinal problems, including spasmodic flatulence day and night as well as chronic vomiting.⁶⁵ In a touching letter from his

devoutly religious wife, Emma, written around 1861, she consoles,

I am sure you know I love you well enough to believe that I mind your suffering nearly as much as I should my own and I find the only relief to my mind is to take it as from God's hand, and to try to believe that all suffering and illness is meant to help us to exalt our minds and to look forward with hope to a future state.⁶⁶

At the bottom of this letter is written, "God Bless you. C.D. 1861." There is no record of any further conversation between Emma and Charles on this issue, but it suffices to state that the Lord sent a messenger, or if one wishes, an angel, who revealed to Charles a message of hope consistent with that of the apostle Paul to the Romans: "We also rejoice in our sufferings, because we know that suffering produces perseverance; perseverance produces character; character produces hope" (Rom. 5:3).⁶⁷

The most intriguing theological insights come from Darwin's evolutionary psychology. Generations of Christians have speculated about the origin of evil, often pointing to a cosmic conflict before the creation of the world, with Satan and his angels being thrown out of heaven. But the Bible is actually silent about such an event. At best, the first evidence of evil in scripture appears in the Garden of Eden with the serpent, who "was more crafty than any of the wild animals the Lord God had made" (Gen. 3:1; my italics). In other words, it seems that temptation, or better, situations to test humans on whether they would follow divine ordinances, was a component of God's "very good" created order (Gen. 1:31). The first appearance of the word "sin" in scripture is found with the Lord admonishing Cain, "Sin is crouching at your door; it desires to have you, but you must master it" (Gen. 4:7). And the human compulsion to sin is first acknowledged with the statement that "every inclination of his [man's] heart is evil from childhood" (Gen. 8:21).

Viewing these three passages from Darwin's perspective in the M Notebook, we could suggest that "our evil passions" are not just crouching at our door, but they are deeply embedded in our brain because of our evolutionary heritage. And just like the account of Adam and Eve in the garden, we have the God-given freedom either to follow the inner voice of "the Devil under the form of Baboon" inside

us, or to resist it.⁶⁸ Of course, what I am proposing here is a reconsideration of the long-standing Augustinian doctrine of original sin.

Justification to challenge the most towering father of the Western church and fifteen hundred years of Christian tradition is not only daunting, but also can be viewed as outright hubris. However, it begins with recognizing that theology is intimately connected to and often expressed through the scientific paradigms-of-the-day.⁶⁹ For example, St. Augustine in his major theological works, *Literal Meaning of Genesis* (415) and *City of God* (426), embraced commonly held notions of the fifth century—geocentricity, a global flood, and even spontaneous generation.⁷⁰ Unsurprisingly, he also accepted the *de novo* (quick and complete) creation Adam.⁷¹ But surprising to our modern scientific generation, St. Augustine accepted preformatist embryology (so-called "one-seed theory")⁷² and believed that every human was at one time inside of Adam's reproductive organs. He asserts,

Hence, when the first couple were punished by the judgment of God, the whole human race, which was to become Adam's posterity through the first woman, was present in the first man ... For, *we all existed in that one man*, since, taken together, we were the one man who fell into sin.⁷³

Commenting on Heb. 7:11 and the idea that Levi was in the "body" Abraham, Augustine claims,

Levi, being in the loins of Abraham according to the flesh ... was there according to the seminal reason [or seed principle] by which he was destined to enter his mother on the occasion of carnal union.⁷⁴

However, these ancient biological notions of human origins and embryology have been conflated to the inerrant Message of Faith that all humans are inherently sinful. Stated another way, an ancient scientific concept (the *de novo* creation of Adam, and his very existence) has regrettably become a doctrinal tenet throughout most of church history. This is the equivalent to asserting that the creation and existence of the firmament in Gen. 1:6–8 are core beliefs that are essential to the Christian faith.⁷⁵

Of course, Augustine was led by a concordist hermeneutic to these conclusions about the physical world, like nearly everyone else throughout most of church history.⁷⁶ But these notions are ultimately

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rooted in an ancient Near Eastern understanding of nature found in the Word of God.⁷⁷ Consequently, it is vital to separate, and not conflate, the *ancient* phenomenological perspective of nature found in scripture from the inerrant Messages of Faith.⁷⁸ With regard to human origins, the *de novo* creation of Adam is an ancient origins science based on the retrojection of an ancient phenomenological perspective of taxonomy. Stated more precisely, ancient people saw living organisms always reproducing after their kinds (e.g., as stated ten times in Genesis 1). By reversing the “genealogical videotape,” they logically returned to the first or original representative/s of a kind. In the case of humans in scripture, this was Adam. And like the ancient astronomical notion of the firmament, which no one today believes exists overhead, Adam never existed either.⁷⁹ Instead, Adam is an incidental ancient vessel that delivers the inerrant spiritual truth that plagues all of us—we are all sinners. In moving beyond Adam and Augustine, the door opens for a modern scientific vessel, in this case evolutionary psychology, to present a more complete Christian account of anthropology, including an evolutionary reformulation of the doctrine of original sin.⁸⁰ Should this ever occur, conservative Christians will thank Darwin for the *Origin of Species* (1859) and for the “light [he has] thrown on the origin of man and his history.”⁸¹ And we will be even more appreciative for his *Descent of Man* (1871) and its theological insights. Coupled with the well-known final sentence in Darwin’s former book, we will also become quite familiar with the last sentence of the latter and the dual proclivities of human nature; blessed bearers of the Image of God and notorious sinners consumed by selfishness. Writes Darwin,

I have given the evidence to the best of my ability; and we must acknowledge, as it seems to me, that man with all his noble qualities, with sympathy which feels for the most debased, with benevolence which extends not only to other men but to the humblest living creature, with his god-like intellect which has penetrated into the movements and constitution of the solar system—with all these exalted powers—Man still bears in his bodily frame the indelible stamp of his lowly origin.⁸²

* * * * *

Finally, I must close with a pastoral concern. As I read the primary literature on the life of Charles

Darwin, the question arose in my mind, “Were leading nineteenth-century evangelical Christians stumbling blocks between Darwin and the Lord?” Evangelicals gave Darwin an antievolutionary model of biological origins—progressive creation—which was erroneous. As well, they indoctrinated him with a static understanding of intelligent design in nature—William Paley’s perfect adaptation—which again was erroneous. For those of us who are evangelicals and trained in evolutionary biology, we see history repeating itself through the anti-evolutionisms of Henry Morris, Ken Ham, Hugh Ross, and others; we see the static concept of irreducibly complex design being proclaimed by the Intelligent Design Movement.

Evangelical students in public universities are leaving the faith in record numbers. One central issue is origins. Clearly, our schools and churches are not preparing them for when they encounter the overwhelming evidence for evolution (Luke 17:1–2). And equally disturbing, many of the well-intended evangelical parachurch organizations on secular campuses disqualify themselves in the eyes of those seeking the Lord Jesus once our tradition’s anti-scientific views become evident (2 Cor. 6:2–3). To the surprise of most, theological insights from Darwin himself might prove valuable in removing stumbling blocks for both believers and nonbelievers. *

Acknowledgments

I am grateful to Paul Fayer for his incisive review of this article. His encyclopaedic knowledge of the Darwin literature never ceases to amaze me. I am also thankful to an anonymous reviewer at *Christian Scholar’s Review* for introducing me to valuable literature on nineteenth-century biology. And I am always appreciative of my assistant Anna-Lisa Ptolemy for her editorial work as well as that of Lyn Berg, Esther Martin, Nancy Rosenzweig, Karen Spivey, and Chelsea Murray.

Notes

¹Denis O. Lamoureux, “Darwinian Theological Insights: Toward an Intellectually Fulfilled Christian Theism—Part I. Divine Creative Action and Intelligent Design in Nature,” *Perspectives on Science and Christian Faith* 64, no. 2 (2012): 108–19. Hereafter cited as Part I.

²Richard Dawkins, *The Blind Watchmaker* (London: Penguin Books, 1991 [1986]), 6.

³See Denis O. Lamoureux, *Evolutionary Creation: A Christian Approach to Evolution* (Eugene, OR: Wipf & Stock, 2009). Hereafter cited as *EC*; Denis O. Lamoureux, "Evolutionary Creation: Moving Beyond the Evolution versus Creation Debate," *Christian Higher Education* 9 (2010): 28–48.

⁴Charles R. Darwin, *On the Origin of Species. A Facsimile of the First Edition*, introduction by Ernst Mayr (Cambridge, MA: Harvard University Press, 1964 [1859]), 488. Hereafter cited as *OS*. Charles Darwin, *The Descent of Man and Selection in Relation to Sex*, 2nd ed. (London: John Murray, 1874 [1871]), 613. Hereafter cited as *DM*.

⁵Charles Darwin, *The Autobiography of Charles Darwin, 1809–1882*, ed. Nora Barlow (London: Collins, 1958), 92–3. Hereafter cited as *ACD*.

⁶Francis Darwin, ed., *The Life and Letters of Charles Darwin*, 3 vols. (London: John Murray, 1888), 1:316. Hereafter cited as *LLD*.

⁷Hans Küng, *On Being a Christian*, trans. Edward Quinn (Garden City, NY: Doubleday, 1976), 431.

⁸The belief that Darwin lost his faith in God because of Annie's death has become a fashionable theme today, so much so that it completely skews (and spoils) director Jon Amiel's movie *Creation* (2009). This distortion also appears in David Suzuki's television series on Darwin in *The Nature of Things* (2009). Even leading Darwin scholars are not immune. E. Janet Browne writes,

His [Darwin's] sense of God had virtually disappeared along with his daughter Anne. Man was nothing to him now except a more developed animal. (*Charles Darwin: A Biography*, vol. 1, *Voyaging* [Princeton, NJ: Princeton University Press, 1995], 513)

For more balanced approaches, see James R. Moore, "Of Love and Death: Why Darwin 'Gave Up Christianity,'" in *History, Humanity and Evolution: Essays for John C. Greene*, ed. James R. Moore (Cambridge: Cambridge University Press, 1989), 195–229; Randal Keynes, *Annie's Box: Charles Darwin, His Daughter and Human Evolution* (London: Fourth Estate, 2001).

⁹*ACD*, 97.

¹⁰Darwin to Hooker, 13 Jul 1856, Darwin Correspondence Project Letter 1924, accessed January 11, 2011, <http://www.darwinproject.ac.uk/>. Hereafter cited as DCP.

¹¹*ACD*, 92–3. See also Part I, 114.

¹²Another passage often cited by skeptics is Darwin's parenthetical comment to Hooker. "I am almost convinced (quite contrary to opinion I started with) that species are not (it is like confessing a murder) immutable." Darwin to Hooker, 11 Jan 1844, DCP Letter 729. If Darwin was referring to the murder of God, it was the tinkering god-of-the-gaps, and not the Creator, whom he definitely accepted in 1844. As Frank Burch Brown notes, "[T]he implied victim of the 'murder' was the God of orthodox theism" (*The Evolution of Darwin's Religious Views* [Macon, GA: Mercer University Press, 1986], 19).

¹³Regarding Darwin's theism, see Part I, 116, endnote 21.

¹⁴*OS*, 490. This juxtaposition also appears in the concluding sentence of the fourth chapter, entitled "Struggle for Existence." Darwin writes,

When we reflect on this struggle, we may console ourselves with the full belief, that the war of nature

is not incessant, that no fear is felt, that death is generally prompt, and that the vigorous, the healthy, and the happy survive and multiply. (p. 79)

¹⁵Francis Darwin, ed., *The Foundations of the Origin of Species: Two Essays in 1842 and 1844* (Cambridge: Cambridge University Press, 1909), 52.

¹⁶Darwin to Gray, 22 May 1860, DCP Letter 2814. *LLD*, 2: 311–2.

¹⁷*Ibid.* My italics.

¹⁸Regarding the conflation of Paley's categories, see Part I, 113.

¹⁹Richard Dawkins, *A Devil's Chaplain: Reflections on Hope, Lies, Science and Love* (New York: Houghton Mifflin Company, 2003), 8. For a similar misuse, see Richard Dawkins, *River out of Eden: A Darwinian View of Life* (New York: Basic Books, 1995), 95.

²⁰Darwin to Gray, 22 May 1860, DCP Letter 2814. *LLD*, 2: 311–2.

²¹"Belief," DCP, accessed January 11, 2011, <http://www.darwinproject.ac.uk/content/view/106/100>.

²²If readers find my comments out of order, then compare them with Dawkins' assessment of me: www.ualberta.ca/~dlamoure/dawkins_and_lamoureux.htm. Reviewer Paul Fayter adds, "This is a very important point to make about Dawkins. In his *God Delusion*, for instance, he routinely misquotes, misinterprets, and lifts texts out of contexts. It's so pervasive that I suspect it is deliberate."

²³Darwin to Gray, 22 May 1860, DCP Letter 2814, italics original. *LLD*, 2:311–2.

²⁴Regarding the Paley's category of perfect adaptation, see Part I, 118, endnote 54.

²⁵Darwin to Gray, 22 May 1860, DCP Letter 2814. *LLD*, 2: 311–2.

²⁶This epistemological argument could be seen as another element in Darwin's theodicy, which is later developed in the final pages of his *The Variation of Animals and Plants under Domestication*, 2 vols. (London: John Murray, 1868). In dealing with the character and origin of biological variations in evolution, Darwin acknowledges that "we know not the cause of each individual difference in the structure of each being," but nevertheless he dogmatically asserts that variations were not "intentionally ordered," "intentionally guided," or "intentionally and specially guided" (pp. 431–2). One of his justifications relates to theodicy. He contends that if "each particular variation was from the beginning of all time preordained" by the Creator, then the implication is that God would be responsible for a series of natural evils, such as the "many injurious deviations of structure, as well as the redundant power of reproduction which inevitably leads to a struggle for existence" (p. 431). Yet not wanting to succumb to a view of biological variation that was entirely "accidental," Darwin simply proclaims his theistic faith and asserts human epistemological limitation:

On the other hand, as omnipotent and omniscient Creator ordains everything and foresees everything. Thus we are brought face to face with a difficulty as insoluble as is that of free will and predestination. (p. 432)

²⁷Darwin to Gray, 22 May 1860, DCP Letter 2814. *LLD*, 2: 311–2.

²⁸*ACD*, 90.

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²⁹ACD, 88, 89–90. My italics. Of course, reference to animals experiencing “happiness” strikes us as rather odd. But this is just another example of a Paleyan category from Darwin’s Cambridge education still operating in his mind late in life. For example, Paley concludes,

It is a happy world after all. The air, the earth, the water, teem with delighted existence. In a spring noon, or a summer evening, on whichever side I turn my eyes, myriads of happy beings crowd upon my view. (William Paley, *Natural Theology: or, Evidences of the Existence and Attributes of the Deity*, 12th ed. [London: J. Faulder, 1809 (1802)], 456)

For other references to animals being happy, see pages 458 (twice), 459 (twice), 462, 463 (thrice), 464, and 466.

³⁰For an introduction, see Daniel Howard-Snyder and Paul K. Moser, eds., *Divine Hiddenness: New Essays* (Cambridge: Cambridge University Press, 2002).

³¹See Part I, 114.

³²My approach to this issue is that “I am convinced that Divine noticeability overwhelms Divine hiddenness. Yet at the same time, *Deus absconditus* tempers *Deus revelatus* in order for faith to be an essential aspect of our life” (EC, 381).

³³Darwin to A. R. Wallace, 22 Dec 1857, DCP Letter 2192.

³⁴OS, 488.

³⁵E. O. Wilson, “Hardwired for God: Is Our Search for Divinity Merely a By-product of Evolution?,” *Forbes ASAP* (4 Oct 1999): 132, 134. My italics. Of course, the “naturalistic hypothesis” embraced by Wilson is metaphysical naturalism.

³⁶Dawkins, *Blind Watchmaker*, xv.

³⁷My italics and insertions.

³⁸Darwin to Gray, 26 Nov 1860, DCP Letter 2998; *LLD*, 2:353. My italics.

³⁹DM, 613. My italics.

⁴⁰ACD, 92. My italics.

⁴¹MNotebook (Jul 1838 to Oct 1838), 136. The Complete Work of Charles Darwin Online, accessed January 11, 2011, <http://www.darwin-online.org.uk>. Hereafter cited as WCD. Caution is in order when reading Darwin’s notebooks. They include remarks which could be misinterpreted for Darwin being a dysteleologist. For example, he writes,

Though (or desires more properly) being heredity it is difficult to imagine it anything but structure of brain heredity ... love of deity the effect of organization, oh you materialist! (WCD, C Notebook [Feb 1838 to Jul 1838], 166)

Because of comments like this one, Silvan Schweber asserts that Darwin was “an utter materialist” and “certainly an agnostic (and possibly an atheist)” by 1839 (“The Origin of the *Origin Revisited*,” *Journal of the History of Biology* 10 [1977]: 234, 310). However, Darwin defines the term materialism, “By materialism, I mean, merely the intimate connection of kind of thought with form of brain.—Like kind of attraction with nature of element.” In other words, Darwin was a methodological naturalist, not a metaphysical naturalist. Howard E. Gruber and Paul H. Barrett note that Darwin’s thinking “was not absolutely incompatible with the idea of a designing Creator who had intended the brain to act as the organ of thought” (*Darwin on Man: A Psychological Study of Scientific Creativity* [New York: E. P. Dutton and Company, 1974], 104); also Neal C. Gillespie, *Charles Darwin*

and the Problem of Creation (Chicago: University of Chicago Press, 1979), 139–40.

⁴²DM, 93. See also 612.

⁴³DM, 94–5. See also 612.

⁴⁴As Justin L. Barrett notes,

Operating largely without our awareness, mental “tools” encourage us to think similarly about many banal features of the world around us. These mental tools also encourage people to think about and believe in gods, the Judeo-Christian God enjoying particular treatment. (Barrett, *Why Would Anyone Believe in God?* [Lanham, MD: AltaMira Press, 2004], vii–viii)

⁴⁵MNotebook, 123.

⁴⁶DM, 124.

⁴⁷DM, 126. The biblical verse is from Luke 6:31.

⁴⁸DM, 125. My italics.

⁴⁹I am mindful that there are two basic ways to deal with this passage. Many early church fathers viewed Paul as speaking as a Jew under the Law. Others, including Augustine later in life, see it as the struggle Paul experienced as a Christian. For the most part, I embraced the latter position. I believe the asceticism of the early fathers skewed their reading of Romans 7. It must be pointed out that following this route does not necessitate Pelagianism. Instead, it is possible to hold Arminian and Calvinist approaches in a dynamic intellectual tension. In disagreement with me, see Kenton L. Sparks, *God’s Word in Human Words: An Evangelical Appropriation of Critical Biblical Scholarship* (Grand Rapids, MI: Baker Academic, 2008), 272–7.

⁵⁰I am certainly not advocating a concordist hermeneutic here, whereby Paul was revealing ahead of time evolutionary psychology. Instead, Paul is describing accurately his spiritual/psychological state. In other words, he is offering his phenomenological perspective, without having any idea of its evolutionary roots.

⁵¹In the light of neurological research supporting the plasticity of the brain, Paul’s admonition—“Do not conform any longer to the pattern of this world, but be transformed by the renewing of your mind” (Rom. 12:2)—could include a remodeling of negative evolutionary behavioral patterns.

⁵²ACD, 92.

⁵³Reviewer Paul Fayter cautions that this embryology-evolution analogy is not to be confused with Ernst Haeckel’s “biogenetic law” in that “ontogeny recapitulate phylogeny.”

⁵⁴See my “Coming to Terms with Evolution: A Personal Story” in EC, 332–66.

⁵⁵EC, 283–93.

⁵⁶Darwin to H. N. Ridley, 28 November 1878, DCP Letter 11766.

⁵⁷Stephen Jay Gould, *Wonderful Life: The Burgess Shale and the Nature of History* (New York: W. W. Norton and Company, 1989), 233–4. Also see 45–52.

⁵⁸Simon Conway Morris, *Life’s Solution: Inevitable Humans in a Lonely Universe* (Cambridge: Cambridge University Press, 2003), 328. Convergent evolution is the phenomenon that similar structures evolve in separate evolutionary lines. For example, the eye has appeared independently forty times and the camera-like eye six times. Morris lists over 400 other examples of convergence in his book.

⁵⁹OS, 490; ACD, 93.

⁶⁰See "Toward an Intelligent Design Model," in EC, 69–81.

⁶¹The italicized clause is my insertion, and the terms "complex elegance" and "elegant efficiency" are from Dawkins, *Blind Watchmaker*, xiii, xvi. See my Part I, 112. It is worth noting that famed atheist and philosopher Antony Flew came to embrace deism late in life because of the amazing complexity of the cell (Antony Flew with Roy A. Varghese, *There Is a God: How the World's Most Notorious Atheist Changed His Mind* [New York: HarperOne, 2008]).

⁶²Pope John Paul II acknowledges that sin is an operative factor in dealing with natural revelation. He writes,

This is to recognize as a first stage of divine revelation the marvelous "book of nature," which, when read with the proper tools of human reason, can lead to knowledge of the Creator. If human beings with their intelligence fail to recognize God as Creator of all, it is not because they lack the means to do so, but because their free will and their sinfulness place an impediment in the way. (Pope John Paul II, "Fides et Ratio," *Origins: CNS Documentary Service* 28 [15 October 1998]: 324)

See also chapter 7, "Sin and Its Cognitive Consequences," in Alvin Plantinga, *Warranted Christian Belief* (New York: Oxford University Press, 2000), 199–240.

⁶³LLD, 1:316.

⁶⁴A similar approach appears in William E. Phipps, *Darwin's Religious Odyssey* (Harrisburg: Trinity Press International, 2002), 185–6.

⁶⁵Medical doctor and historian Raph Colp Jr. argues persuasively that Darwin contracted Chagas disease in South America during the *Beagle* voyage. In 1834, Darwin records being bitten by *Triatoma infestans* bugs, which are carriers of *Trypanosoma cruzi* protozoa and the cause of this disease. Colp contends that

Darwin had an active infection of his stomach and intestine that became arrested after inflicting permanent injuries (to parasymphathetic nerves). As a result of these injuries, his sensitivity to becoming ill from various mental stresses, including stresses from his evolutionary ideas, was greatly increased. (Colp, *Darwin's Illness* [Gainesville, FL: University Press of Florida, 2008], 179)

⁶⁶Emma Darwin to Charles in ACD, 238.

⁶⁷I have no trouble postulating that late in life Darwin encountered another angel who demonstrated to him the power of God. Drunkenness was a problem in Downe, and the Darwin family had converted an old schoolroom into a temperance reading room. Evangelist and rescue worker James Fegan approached Darwin and asked if he could use the room to conduct religious services. Darwin's reply is telling.

You ought not to have to write me for permission to use the Reading Room. You have far more right to it than we have, for your services have done more for the village [Downe] in a few months than all our efforts for many years. *We have never been able to reclaim a drunkard* but through your services I do not know that there is a drunkard left in the village. Now may I have the pleasure of handing the Reading

Room over to you? (David Herbert, *Charles Darwin's Religious Views: From Creationist to Evolutionist* [London, ON: Hersil Publishing, 1990], 96. My italics.)

See also James R. Moore, *The Darwin Legend* (Grand Rapids, MI: Baker Books, 1994), 86–8.

⁶⁸MNotebook, 123.

⁶⁹Frederick Ferré observes, "[T]here is an important two-way influence between general theories of nature and an epoch's conception of the deity" (Frederick Ferré, ed., *Concepts of Nature and God* [Athens, GA: University of Georgia, Department of Philosophy, 1989], vii).

⁷⁰St. Augustine, *The Literal Meaning of Genesis*, trans. J. H. Taylor, 2 vols. (New York: Newman Press, 1982), 1:58–61; St. Augustine, *City of God* (16.7), trans. Gerald G. Walsh, Demetrius B. Zema, Grace Monahan, and Daniel J. Honan (New York: Doubleday Image Book, 1958), 364.

⁷¹*Literal Meaning*, 1:177–207; *City of God* (7.26–8; 8.1–3), 265–9.

⁷²For a brief introduction on the history of preformation, see Ernst Mayr, *The Growth of Biological Thought: Diversity, Evolution, and Inheritance* (Cambridge, MA: Belknap Press, 1982), 106, 645.

⁷³*City of God* (8.3), 271, 279. My italics.

⁷⁴*Literal Meaning*, 2:123. Augustine's notion of "seminal reason" or "seed principles" (Latin *rationes seminales/causales* or the Greek Stoic term *logos spermatikos*) claimed that God had "seeded" the creation with "principles" that later would "grow" into fully formed creatures. Accordingly, "in a seed there are both the visible corporeal germ and the invisible formative principle" (*ibid.*). See also Kenneth J. Howell, "Natural Knowledge and Textual Meaning in Augustine's Interpretation of Genesis: The Three Functions of Natural Philosophy," in *Nature and Scripture in the Abrahamic Religions: Up to 1700*, vol. 36:1, ed. Jitse M. van der Meer and Scott Mandelbrote (Leiden, Netherlands: Koninklijke Brill NV, 2008), 136–40.

⁷⁵See Paul H. Seely, "The Firmament and the Water Above. Part I: The Meaning of *raqia'* in Gen. 1:6–8," *Westminster Theological Journal* 53 (1991): 227–40; Denis O. Lamoureux, "Lessons from the Heavens: On Scripture, Science, and Inerrancy," *Perspectives on Science and Christian Faith* 60, no. 1 (2008): 4–15.

⁷⁶Stanley L. Jaki cogently argues that the "spectre of concordism" was common in both Protestant and Roman Catholic circles up until the twentieth century (*Genesis 1 through the Ages* [London: Thomas More Press, 1992]). Though I might add, considering the information that ancient people had, their conclusions about nature were quite reasonable. We would have held the same views.

⁷⁷For the ancient science in Scripture, see John H. Walton, *Ancient Near Eastern Thought and the Old Testament: Introducing the Conceptual World of the Hebrew Bible* (Grand Rapids, MI: Baker Academic, 2006), 165–99; Kenton L. Sparks, *Ancient Texts for the Study of the Hebrew Bible* (Peabody, MA: Hendrickson Publishers, 2005), 305–43; EC, 105–47.

⁷⁸Regrettably, many evangelical Christians today confuse and conflate their *modern* phenomenological perspective with that of the Bible and ancient people. For example, the ancients truly believed that the sun literally and actually moved across the sky daily. This belief lasted up to the 1600s

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and was a central issue of the Galileo affair. However, we today recognize that the sun's "movement" is only a visual effect. See EC, 107–10.

⁷⁹Of course, I am mindful of the struggle my evangelical tradition experiences over the historicity of Adam. Recent works written by mostly scientists continue in a variety of novel ways to tack on an Adam at the tail end to evolution. However, in many of these new concordist approaches, it is painfully obvious that the authors have little to no training in Old Testament scholarship. For example, Darrel R. Falk, *Coming to Peace with Science: Bridging the Worlds between Faith and Biology* (Downers Grove, IL: InterVarsity Press, 2004); Denis Alexander, *Creation or Evolution: Do We Have to Choose?* (Oxford, UK: Monarch Books, 2008); R. J. Berry and T. A. Noble, eds., *Darwin, Creation and the Fall: Theological Challenges* (Nottingham, UK: Apollos, 2009). Regrettably, evangelical academics are often chained to concordist interpretations of Adam because of intellectually and spiritually oppressive statements of faith. For example, one of the most important evangelical colleges in the world forces professors to embrace the following:

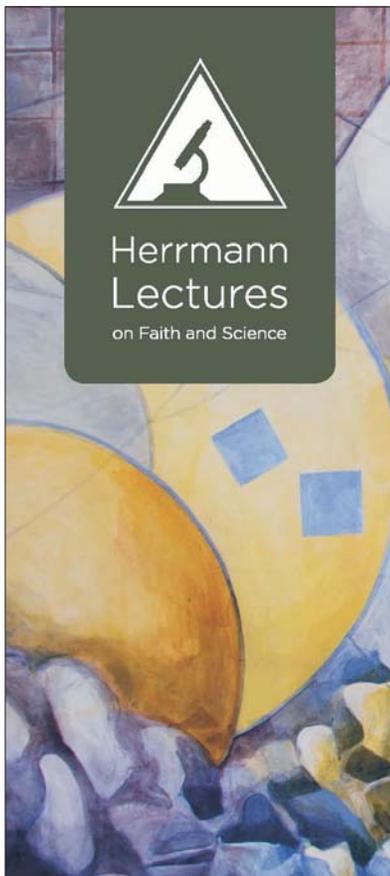
WE BELIEVE that God *directly created* Adam and Eve, *the historical parents of the entire human race*; and that they were created in His own image, distinct from all other living creatures, and in a state of original righteousness. (Wheaton College Statement of Faith, <http://www.wheaton.edu/About-Wheaton/Statement-of-Faith-and-Educational-Purpose>. My italics.)

⁸⁰Daryl P. Domning roots original sin in evolutionary selfishness. His work is valuable, but would have benefitted by balancing "original selfishness" with an evolutionary origin of natural revelation (*Original Selfishness: Original Sin and Evil in the Light of Evolution*, with commentary by Monika K. Hellwig [Aldershot, UK: Ashgate, 2006]). For example, evolutionary psychological insights could be drawn from Frans de Waal and cast within a Christian paradigm. De Waal writes, "We walk on two legs: a social and a selfish one ... We have a deeply ingrained sense of fairness, which derives from our long history as egalitarians" (*The Age of Empathy: Nature's Lessons for a Kinder Society* [New York: Harmony Books, 2009], 159). I am grateful to Callee Soltys for introducing me to this work. Patricia A. Williams, *Doing without Adam and Eve: Sociobiology and Original Sin* (Minneapolis, MN: Fortress Press, 2001), also offers some helpful insights, but her reactionary antievangelical rhetoric distorts her views.

⁸¹OS, 488.

⁸²Charles Darwin, *The Descent of Man and Selection in Relation to Sex*, 1st ed., 2 volumes (London: John Murray, 1874 [1871]), 2:405.

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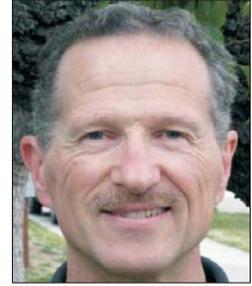
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R. Scott Smith

Could We Know Reality, Given Physicalism? Nancey Murphy's Views as a Test Case

R. Scott Smith

Nancey Murphy develops an integrated case for physicalism across several disciplines, rejecting the soul as one's immaterial essence philosophically, scientifically, and biblically. Her physicalism is nonreductive causally, yet reductive ontologically. This article (1) explains her ontology; (2) examines her ontological resources for us to know reality; (3) argues that we cannot know reality on that basis; and (4) sketches a positive case for how we can know reality, which will require what she denies – immaterial essences, even souls.

Various Christian scholars have advocated turning away from viewing humans as having a body and soul (substance dualism) to a form of monism, namely, physicalism.¹ Some work (or worked) primarily in the sciences, such as Arthur Peacocke, Warren S. Brown, and Malcolm Jeeves. Others specialize in theology, biblical studies, or philosophy, for example, LeRon Shults, Joel Green, or Lynne Rudder Baker.

I will focus upon the work of Nancey Murphy, who has developed a tightly integrated case for physicalism across several disciplines, including philosophy (and philosophy of science), neuroscience, psychology, theology, biblical studies, and ethics. Due to the scope of her influence, her work can provide an excellent vehicle to examine the prospects of physicalism, especially for Christians working in science and/or in philosophy and theology of science.

Murphy rejects the human soul as one's immaterial essence for philosophical, scientific, and biblical reasons. To her, contemporary biblical studies seem

to show that scripture does not necessarily teach body-soul dualism. Rather, word studies, such as those by Green, seem to show that, for example, the Greek word *psuche*, which usually has been translated in the Bible as "soul," could be translated as "life," thereby not requiring anthropological dualism.²

Murphy's version of physicalism is "nonreductive" causally, yet reductive ontologically. It is the hard core of a scientific research program and part of her Anglo-American postmodern philosophy, which also includes epistemological holism and her linguistic appropriations of the later Wittgenstein and J. L. Austin. For example, all experience and knowledge are theory laden; there is no nontheoretical, direct access to reality.

Murphy clearly thinks that we can know much about the way reality is. She rightly presupposes that our thoughts, beliefs, experiences, and more can give us knowledge of reality. Yet, I want to call into question our ability to do that,

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given her ontologically reductive physicalist views. To do this, first I will try to explain her ontology. Second, I will examine her ontological resources for us to know reality. Nevertheless, third, I will argue that we cannot know reality on her views. Then, fourth, I will sketch a positive case for how we can know reality, which will require what she denies—immaterial essences, including that we have souls.³ This finding should have vast implications for knowledge in science, theology, and other academic disciplines. But it may help to briefly define some technical philosophical terms and concepts before continuing.

Some Philosophical Terms

Since Aristotle, philosophers have understood a *substance* to be an individual thing which is constituted as such by a deep principle of unity. A living thing would be a substance, and its life (or, its *soul*—as many have said, following Aristotle) would be its principle of unity. However, a conglomerate rock is made up of many different kinds of stuff that is not held together by a deep principle of unity. Thus, it is best thought of as an *aggregate*, not a substance. Here, “substance” is being used distinctly from its common understanding as material stuff.

On Aristotle's view, all substances have *essences* or *natures*, which are the set of properties that make it the *kind* of individual it is. A dolphin has a certain genetic “blueprint” and is a substance of the kind *Delphinidae*. An atom with seventy-nine protons in its nucleus is of the kind *gold*. We can identify substances properly as members of kinds by mentally grasping their essences. So, substances have a natural, intrinsic unity, which is not humanly contrived.

Substances also can have nonessential properties; that I know and understand natural selection is not essential to me, but it still is true of me. I have essentially the *capacity* for being patient, but whether I actually develop that virtue is nonessential to my being. I also can remain the same person through time and change. How? Aristotle's answer is that it is due to sameness of soul (our essential set of properties), not our nonessential properties (e.g., that I have brown hair), which can and do change.

Substances also are the *owners* and *possessors* of their parts and *properties*, but they are not “had” by

anything more fundamental. As a human substance, I *have* all my parts and properties *in* me, but I am not part of another substance. The same applies to our cat or our grapefruit tree. Properties also seem to have essences; for example, courage is essentially a kind of virtue, not a color or shape. For Aristotle, properties can be material or immaterial.⁴

Last, *intentionality* is a property of mental states, namely, their “of-ness,” “about-ness,” or representing quality. It is *not* identical with *intention* (purpose). We think *about* theories, chemical compounds, and more. We have beliefs *about* our scientific findings, God, and other things. When making observations, we have experiences *of* whatever we are observing.⁵

Intentionality does not seem to be just a linguistic feature. It seems to be a necessary feature of our mental states. It seems that if we pay attention to them, we can know these features to be so. If one doubts intentionality's being necessary, try having one of these mental states without it being of or about something (whether that “thing” obtains in reality or not).

Murphy's Ontology

Though Murphy favors nonreductive physicalism, she criticizes reductive kinds.⁶ She sees them in the light of the metaphysical reductionism of the modern period. Causation is bottom-up in such views, in which the behavior of the lowest-level parts of a system (the subatomic ones) determines all other levels of behavior.⁷

Murphy rejects this view for a variety of developments. First, she argues that there is the emergence of properties or processes that are describable only by concepts pertinent to a higher level of analysis than physics.⁸ Some features of life cannot be described in the language of physics or other natural sciences. For example, she asks why there are apparently fine-tuned cosmological constants that are necessary for life, as opposed to all other possibilities.⁹ Furthermore, “Why are there any laws at all? What is their ontological status? What gives them their force?”¹⁰ She thinks that science cannot answer these questions; they are the province of theology or of other religious or metaphysical views.

A second reason for rejecting causal reductionism is “decoupling,” understood broadly beyond its meaning in physics. By it she means to describe “the relative autonomy of levels in the hierarchy of the sciences.”¹¹ For example, she discusses the behavior of a gas in a container, in which “some average properties of the gas particles (the micro-level) matter for purposes of description at the macro-level,” such as the relationship of the average kinetic energy of the molecules to the absolute temperature of the gas.¹² But, she notes that the exact path of the individual molecules does not matter. There could be many paths that would yield equivalent macro-level results. By extension, she claims that “emergent laws (laws relating variables at the higher level) are coming to be seen as significant in their own right and not merely as special cases of lower-level laws.”¹³ If right, causal reductionism should be rejected. Instead, we should realize the places for bottom-up *and* top-down causation, and whole-part constraint.

Laws at higher levels restrain lower-level processes, and higher-level states are multiply realizable. That is, an act can be described biologically, yet redescribed at higher levels. For instance, biologically, a person may kill an animal. Psychologically, the event becomes an action, since at that level we consider intentions, which involve the circumstances under which the event took place (perhaps putting the animal out of its misery). Socially, a different description could arise, such as whether an action is socially acceptable in that culture, which involves a different set of circumstances. Then, there could be legal and economic descriptions. In each level, there are different circumstances *and* different languages and descriptions at work. Circumstances play a significant role in each level. Certain lower-level properties can constitute a kind of higher-level property (psychological, moral, etc.) under proper circumstances.¹⁴

Murphy gives some additional examples about the emergence of new causal capacities, to demonstrate more fully the multiple realizability of higher-order properties.¹⁵ First, goodness may be lived out in many patterns of life, and not just as St. Francis did. Second, she discusses how she may arrange with a friend to use a light in her window as a signal, to let her friend know if she is at home or not. If the light is on, it means she is home; if not, it means she is away. Murphy claims here that there is only one

state of affairs, but two levels of description. As she explains, “Turning the light on constitutes my sending the ‘at home’ message under the circumstances of our having made the appropriate arrangement.”¹⁶ But, *that* message could have been realized differently; they could have used a different signal (the shade being up) to give the same message.

Third, Murphy considers how nonneural circumstances are “widely recognized” to make a difference in the multiple realization of higher-order properties in the role of “mental set” in perception. She considers a case in which

subjects receive a small electric shock on the back. Depending on their mental set, they will experience the sensation either as a burn or as ice. So at the subvenient level there is a series of physical events including the application of the shock, the transmission of a nerve impulse to the brain, and the set of brain events that realize the sensation of either hot or cold. The mental set will, of course, be realized neurologically, but it is multiply realizable: it could be the realization of a variety of perceptions of the environment (ice-cube tray on the counter, burn ointment), or the result of statements by the experimenters, or any one of an unbounded set of other devices resulting in what we can only meaningfully describe at the mental level as the *expectation* of heat or of cold.¹⁷

In these cases, Murphy intends to show that higher-level descriptions supervene upon lower-level ones, and circumstances (context) play a central part in what constitutes the higher-order ones. Higher-order properties are not identical with the lower-order ones, thereby arguing against causal reductionism.

While there may be different circumstances at higher levels of description, nonetheless there is one ontological state of affairs, which is physical. Put differently, Murphy is against causal reductionism, but she favors ontological reductionism. Humans are physical things, but they may be described variously—physiologically, mentally, ethically, sociologically. Indeed, we “only make causal sense of a series of human actions by attending to the mental-level description, which includes reasons, judgments [free will], and so on.”¹⁸ Descriptions of the mental are not reducible to those of the physical.¹⁹ Hence, she embraces nonreductive physicalism. Likewise, the creation is physical, but it can be described in ways that cannot be reduced to physical discourse.

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So, higher-level properties constrain lower-level ones in physical substances in a physical world. For Murphy, wholes are genuinely significant; this concept counts against reductive physicalism.²⁰ Wholes and parts mutually condition each other. Murphy explains this concept in regard to how the mental and physical can interact in human beings:

The nonreductive physicalist view ... attributes mental and spiritual properties to the entire person, understood as a complex physical and social organism. Since mental states ... are states of the whole person, no special causal problems arise.²¹

Murphy advocates nonreductive physicalism as the hard core of a scientific research program, which she sees as the most progressive such program available.²² In contrast, I believe that she sees dualism as a degenerative one. Murphy thinks that

science has provided a massive amount of evidence suggesting that we need not postulate the existence of an entity such as a soul or mind in order to explain life and consciousness.²³

Furthermore,

philosophers have argued cogently that the belief in a substantial mind or soul is the result of confusion arising from how we talk. We have been misled by the fact that "mind" and "soul" are nouns into thinking that there must be an object to which these terms correspond.²⁴

Moreover, dualists have been unable to solve cogently how an immaterial substance can interact with a physical body.²⁵ So, for her, the soul is not an immaterial substance; rather, it is a "functional capacity of a complex physical organism."²⁶ Indeed, without a neo-cortex, there is no capacity for philosophical or other kinds of thought, and there would not be persons.²⁷

Despite her clarity, I have observed peoples' confusion about her views of mental qualities. Due in part to her use of terms like "mental properties" or "capacities," it might seem to them that she is a property dualist who supports an emergence of immaterial mental states from the brain. Yet, this interpretation seems mistaken, for she clearly affirms ontological reductionism. So, for her, humans are physical, without any immaterial parts or properties. Yet, there is a plurality of discourses, each with its own language, which may supervene upon ontological and higher-order discourses. But these are different ways of conceiving what is ontologically real.

Now, Murphy clearly thinks that our thoughts, beliefs, and experiences can give us knowledge of reality, only not in a nontheoretical, unconceptualized, or immediate way. For her, all our access to reality is mediated and requires concepts. How might that work, given her ontological resources?

Her Ontological Resources for Knowing Reality

Let me discuss one general criterion for our mental states to be together with what we are thinking about, observing, or believing. It is the "of-ness" or the "about-ness" (or, intentionality) of our mental states. For instance, I am having a visual experience of my laptop's screen, which experience can be together with the actual screen if it is present before me.

So, on Murphy's physicalism, how might our mental states be together with reality? I am not aware that she directly addresses this question. However, she does address related topics. For instance, the subject of reference appears in terms of its being one such topic, but not the main or only one. For her, the meaning of a term or sentence is not a matter of what a private mental state is about. Instead, it is the way the term is used in a language game in a community.²⁸ Though our words can be used to refer to and describe reality, that always is done under an aspect, or conceptual scheme, for we never have direct access to reality.

This discussion is related to her epistemology, in which she rejects *foundationalism* in principle. On foundationalism, there would be some beliefs that are directly, or immediately, justified, due to their being based, or "erected," upon a "foundation" that can be "anchored" in reality – to use a building metaphor. These are "basic," "foundational" beliefs. Other beliefs can be justified if they are based upon these, and even more theoretical beliefs can be justified by their being based upon other justified beliefs, much like a new story of a building is supported by the strength of the previous one, and the strength of the entire edifice is grounded ultimately in its foundation.²⁹ But as she says, even so-called "foundational" beliefs end up "hanging from the balcony"; they are supported by higher-order theoretical beliefs and cannot give us insight directly into reality.³⁰

So, while she affirms roles for referring to objects in reality and our being able to know them, albeit always from under a theoretical aspect, nonetheless she seems to presuppose that our thoughts, experiences, and beliefs can be together with their intended objects. That is a good presupposition we live by every day. Still, she does not seem to address how that “togetherness” happens.³¹ But perhaps other physicalists who have tried to address it can help.

Moreover, it could be important to address, since our knowing some things depends at least upon some broad conditions. First, *how* we know something depends in part upon what *kind* of thing it is we are trying to know. For instance, I will not come to know what logical inference is in the same way I know what garlic tastes like. Second, our knowing some things seems to involve what kind of thing *we* are. For instance, as image bearers, we have abilities to reason morally and know many abstract concepts, which other creatures seem to lack.

So, does her nonreductive physicalism have the ontology needed so that we can know reality? And, how might Murphy help account for our mental states’ intentionality, and how they can be together with reality, given her physicalism? Perhaps the most plausible story for physicalists in general is to appeal in veridical cases to a physical, causal story, in which an external object causes in us a mental state (an experience, for instance) as the result of a causal chain of physical states, originating with the intended object and terminating in us. For instance, the laptop I see causes in me the experience of it. So, that experience is *of* the laptop in the sense that it is *causally correlated* with it.

Surely there is much truth herein. Even on a dualist view, there is a causal story to be told about the light waves reflecting off the laptop, causing a series of physical states that impinge upon my retina, which, in turn, cause sensations in my optic nerve, and then brain state activity. Without such a causal sequence, I would not have that experience.

Issues with the Reliable, Causal Chain View

Still, there is a principled objection to causal chain accounts of perception. We have access only to the last physical state, without any way to traverse the lengthy chain and arrive at the originating object.

Hence, how can we know that it is indeed the originating object which the experience (or other mental state, like a belief) is about? However, Fred Dretske, a naturalist, has replied that we

don’t have to “traverse” the causal chain resulting in the belief in order to have knowledge of the external cause. All that is required is that the belief, in fact, be the result of some reliable process [because] this information [about the object] ... is being transferred in the perceptual process to the representation (experience) ...³²

Dretske seems right. With an instrument, we do not have to know that it is, in fact, functioning properly in order to know that what it indicates is thus-and-so. I do not verify that my car’s engine temperature gauge is working properly each time I look at it before I am entitled to believe that what it indicates is correct.³³

But, will his reply rebut this objection? Suppose a scientific researcher tries to observe the effect of a new selective serotonin reuptake inhibitor (SSRI) upon a particular patient’s brain. The scientist observes what appears to be a change in brain cell chemistry. But, suppose that the researcher’s experience actually is being produced by something else, or maybe by nothing whatsoever (i.e., a hallucination). How will the researcher be able to know the difference between veridical experiences of the effect from this SSRI and those that are not? On Murphy’s view, the scientist’s brain states, which are being conceived under the aspect of being of the SSRI’s effects, will perform the functional role of enabling the researcher’s experience to be together with its intended object, *even if* this SSRI is not actually being used. All these processes simply seem to happen to the researcher. And, the researcher cannot find out through more observations if the real SSRI is causing his or her experiences, since the scientist cannot traverse the chain to the originating object.

Another issue is that there is *not* a *necessary* connection between thoughts, beliefs, or experiences of an object and the object itself. A mental act’s mere “of-ness” is not sufficient, for we can think about many things, including possible states of affairs, without their having to obtain in reality (e.g., Pegasus or if my glasses are on my desk at home). The latter case parallels those in scientific testing, in which we form a hypothesis and test for its accuracy. Conversely, the existence of an object does not entail

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that there would be any thoughts or experiences of it. *Their connection, therefore, is not existential, thereby undermining causal chain accounts.*

What, therefore, could the “nature” of this connection be in veridical cases? Perhaps we can gain a clue by paying careful attention to what is before our “minds”³⁴ in conscious awareness. I think that we can notice that the intentionality of our thoughts, beliefs, and experiences have significant, even *essential* features. First, they are *particularized*. Consider my thought about tonight’s dinner, or my experience of being seated at a table. What they are of is not generic or undifferentiated.³⁵ In each case, their intentionality is directed “toward” some intended “object.”³⁶

Second, these mental states *necessarily* have intentionality. It does not seem that we could have a thought, belief, or an experience in making an observation that lacks intentionality. Moreover, their intentionality seems to be *intrinsic*, or *essential*, to *each* mental state. My thought about tonight’s dinner could not be about anything else and still be the thought it is. I could think about the protons in gold, but that is a different thought, due to its different contents.³⁷ Similarly, I could observe a gas’s behavior, but *that* experience could not have been of my being seated.

An Issue from Quine

So, how might these features help us explain the connection between our mental states and reality (in veridical cases)? W. V. O. Quine might help us in a discussion of what he calls the *indeterminacy of radical translation*. He considers how we could translate text from one language into another, radically different one, and yet not lose the author’s intended meaning. To him, the translation (and meaning) always will be an open question, since there are no intrinsic meanings to words. Daniel Dennett explains, “Quine’s thesis ... is thus of a piece with his attack on essentialism; if things had real, intrinsic essences, they could have real, intrinsic meanings.”³⁸

For Quine, there are no essences to words because there are no immaterial essences (i.e., “essentialism” is false). As a naturalist, an essence could not be a particular physical pattern that is found in many instances. If it were, then the typed word “theory” (i.e., a word “token”) could have an intrinsic essence.

But, it does not, for we *could* have assigned a different meaning to that word token—perhaps even to mean, for example, a sandwich. Moreover, what do many instances of the word “theory” have in common? We could conceive of these instances abstractly, maybe as part of the set of six-letter words, but that would be just our *conceptualization*, which would not confer an *intrinsic essence* to “theory.” So, the word token “theory” itself does not have an essential, intrinsic meaning. It seems that it would need to be something nonphysical.

While Quine focuses on meanings (which also are intentional), an extension is that mental states also could have real, intrinsic intentionality if they had real, *intrinsic essences* (i.e., immaterial ones). Just as there could be a “deeper fact,” namely, an essence, beyond a mere attribution or interpretation that could settle a question about what an author really meant, there could be a deeper fact about whether one’s experience really is intrinsically of some object, or whether the person is just conceiving it to be so. Moreover, it seems that intentionality is a property that literally all thoughts, beliefs, and experiences used in observation have in common. How can that be? It seems that it is a *universal*—an immaterial entity that is *one* thing, and yet it can be present in *many* particular instances—that cannot be reduced to a physical representation, which always would be particular. It also seems that intentionality cannot be reduced to a physical property because it does not seem to have weight, mass, or density. Nor does it seem to be definable by being spatially related to, or heavier or harder than, some physical object. Yet, intentionality is intrinsic and essential to these mental states.

Now, since Murphy also rejects immaterial essences, there also would not be any real, intrinsically intentional states for her. But this means her view faces a major problem. For if so-called “mental” states really are ontologically just physical states, they have been conceived as being intentional by us, using the language of “mentalist” discourse. We have given them a linguistic attribution of being of or about their intended objects. But that attribution does not somehow add intrinsic intentionality *itself* to that state. And while a patient’s brain state is affected by how *that* person conceives of it, nonetheless that brain state *itself* is indifferent ontologi-

cally to how others conceptualize or describe it from a third-person standpoint.³⁹

So, without real, intrinsic intentionality, it seems that we are left with only *taking* our mental states to be of such-and-such. This result fits with Murphy's overall philosophical views, since she holds that all experiences, beliefs, et cetera are theory-laden. But without a way to have our mental states line up directly with reality itself, apart from our interpretations, we are left without a way to begin the process to interpret (much less know) reality. For interpretations eventually must be of something that is not an interpretation, lest we have an infinite regress of interpretations without a way to start, not being able to access anything in the real world.⁴⁰ Consider an elementary school experiment: students observe ten ravens and notice all are black. They then reasonably infer that all ravens are black. Is their hypothesis defeasible? Yes; but that requires observing more ravens *themselves*, and not our interpretations of them.

The upshot seems to be that there is *no ontologically real, intrinsic intentionality* available to her, to help address how our mental states truly can be together with their intended objects in reality, or to preserve the essential features of intentional states. Accordingly, it seems that, on her ontology, our mental states and their intended objects cannot be together. If so, then it seems that there is no way we could know reality on Murphy's physicalism.

But perhaps she could reply along Wittgensteinian lines. That is, our mental states are together with their intended objects due to how we use our language in our community, according to our "grammatical rules."⁴¹ Still, this move simply presupposes the very thing in question. Somehow, words need to become fixed with objects, and to even begin to make such rules seems to require the very togetherness we are seeking to explain.

Or, perhaps God somehow sovereignly and graciously acts to enable our mental states to be together with reality, so we can know it. Perhaps God moves at the quantum level to "impart" or reveal truths to us. Murphy has suggested that God moves at the quantum level in human beings to communicate with us, all the while not determining us or our actions in any significant way.⁴²

Still, for her, quantum phenomena are not immaterial, given her ontological reductionism. Though physical, they have capacities such that we cannot predict (all?) their behaviors. So while God may have thoughts and beliefs he wants to communicate to us, nonetheless we will not be able to receive them, simply because we are working solely with physical stuff which will not have real, intrinsic intentionality. Therefore our mental states will not be able to be together with their objects.

The Nature of the Connection and Various Objections

How then ontologically can our mental states be together with their intended objects? Surely they can be, for we do know many things. Since the connection is *not* existential, and since for the physicalist who denies immaterial essences altogether there is no real, intrinsic "of-ness" or "about-ness," it seems that we are left with a conclusion that undermines physicalism: *the needed connection seems to be due to immaterial essences*. That is, if a mental *act* is of the appropriate *kind*, then the objectivity of the object is knowable. For instance, to examine an argument's validity we would not smell it, nor would we tune a violin by tasting the strings. Rather, there seem to be *essential* kinds of constraints that determine which acts and objects can come together in what Edmund Husserl called a relationship of "fulfillment," or verification, a relationship we can be aware of, in which the object is present before us in conscious awareness and found to be as it is thought to be.⁴³ Wholes, such as balls, persons, theories, and more, can enter into that relationship with the mental states which are of them, due to the kinds of properties they have.

Moreover, this seems to be the only way to secure the intrinsic quality of intentional acts. A given mental act is intrinsically of or about its intended object (whether it obtains or not) due to *that* act's intentional nature, or essence—its being of or about that object.⁴⁴ Moreover, the mere intentionality of, say, my thought about my apple that I will eat for lunch will not suffice for it to be together with it. I believe the connection that can obtain in veridical cases is due to the given intentional state's nature, along with the intensional properties' essence(s) in the intended object (that is, properties that object must have to be that *kind* of thing). There is a *natural*

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affinity between them, due to their natures or essences.⁴⁵

Now, some might object that these concerns can be alleviated if Murphy is willing to admit into her ontology emergent, immaterial mental states whose essence is to be of their intended object. While intriguing, I do not think that this will help us know reality. For even if we have such states, of what *use* can they be to *us*? Somehow, *we* need to be able to *use* them to know reality. Consider my experience of some red, round object at a distance, such that I cannot discern if it is a ball, an apple, or something else. As I walk toward it, I can have more experiences of it. Eventually, I can see it more clearly, and it appears to be an apple, but of what kind? I can make more observations by looking at its shape and bottom. I can notice that it has the points which I know are characteristic of red delicious apples. I then form the belief that this is a red delicious apple.

Somehow, through a relatively short period of time, I have had experiences which I know have been of the same object. Other cases (e.g., scientific studies) may require experiences over much more time. I progressed to a point where I could form a true belief that it is a red delicious apple. Somehow, I must have a noetic unity through this process, that I am able to compare my experiences with each other, perhaps unconsciously, and even with my concept of what a red delicious apple is, finally to see it as such, and then form a belief based on these experiences.

Deliberately, I am calling attention to what we often take for granted. But, what must be true about me (and us) in order to be able to do these things? First, these mental states need to be present in me; *I have* and *own* them. But what kind of thing am I? If I am basically my brain or my body, that is, a physical thing with emergent, immaterial mental states, we might well wonder how something immaterial could arise from just the material. Worse, how could I have these mental states, in that they would be immaterial, whereas their owner would be material?

Second, just because an experience itself could be of its object, it does not follow that *I* may *know* that. I need to be able to *use* that and other mental states, as described above. However, I do not see how that

could happen if I am basically physical, yet these experiences are immaterial. This raises the interaction objection: how could a physical being (or brain) interact with an immaterial mental state? And now the objection arises in the context of our having seen that mental states and their essences need to be immaterial.

How might we explain this interaction? Substance dualists (particularly Aristotelian, as opposed to Cartesian) suggest that *I* am my essential set of properties (i.e., my soul), an immaterial entity that owns and unifies all my ultimate capacities, parts, and properties, including my body, brain, and mental states.⁴⁶ If so, I reasonably could have and use my various mental states, since my soul naturally would have immaterial mental states present in it.

Also, this case illustrates our need to be able to remain the same (identical) person through time and to be able to change throughout this entire process. If not, then the one who is having the experiences at one time is no longer the same person as the one having them at another time. What is the most plausible basis for our personal identity?

It does not seem that it could be the brain or body, for both change over time. As new neural pathways are developed, such as through psychotherapy, the brain changes. And the body's cells replace themselves over time, yet somehow I know that I am still the same person now who lived in Moraga, California, from 1969–1981; married in 1984; and who could lose an arm and still be me. What is the most reasonable basis for believing that commonsensical assumption? The substance dualist can answer reasonably that it is due to sameness of our essential set of capacities (our soul), even though other non-essential properties and parts may change, even "soulish" ones.⁴⁷

However, some may object that I have not shown how the dualist can "account" for this interaction; thus, neither Murphy's nor the substance dualist's views must be true. Perhaps by "account," this objector means "fully explain," so an explanation would have to be given in terms of being empirically knowable or entailed by logical deduction.⁴⁸ If so, this is an unreasonably high standard to be required for knowledge. It would eliminate other well-established truths, for example, the validity of infer-

ence, a necessary component of science. It also would undercut empirical observation, for how do we know that we can trust the deliverances of our sensory faculties? It surely is not by empirical observation, which would be circular. Nor would it be by deduction. Moreover, there are extremely few things in life that we will be able to explain fully, yet we do not thereby discount what is real. Surely scientists and dualist philosophers cannot exhaustively explain our mental life; but why should we expect to do that to be entitled to our knowledge claims, even if we find evidence later that forces us to modify our beliefs?

Or maybe the objector means that I must show a *mechanism* for interaction in order to explain it. But this rebuttal seems to show a physicalist bias against dualism. If we pay close attention, I think that we can observe that *we* direct our bodies to make observations. And, as I showed above, the process of having a visual experience seems to require both physical and immaterial aspects.

Another objection might be that my reasoning is circular; that is, “people must have souls because unless one acknowledges that people are in essence an immaterial entity separable from their bodies, one does not know the reality of what people are.”⁴⁹ But this is *not* my point. We (physicalists included) can know many things. This knowledge is *not* due to what one *acknowledges* or *believes* about humans. Rather, it is due to what is *real* about us and our mental states. My point is ontological, *not* epistemological.

I think that we cannot know reality based on physicalism because, without immaterial essences to our mental states, we cannot match up with reality. And to have and use such states, it seems that substance dualism is needed. Therefore, I think that Murphy’s physicalism is mistaken.

More Implications

These considerations seem to have broader applications than just to Murphy’s physicalism. Rather, they seem applicable to all varieties of physicalism, even to naturalistic ones.⁵⁰ Though physicalism is becoming more fashionable and influential among Christians in science and other disciplines, it exacts

a tremendous price—no knowledge of reality.⁵¹ Therefore, we should reject it.⁵² ×

Notes

¹I will use “physicalism” instead of “materialism” because the latter often suggests a worldview that excludes God. See Nancey Murphy, *Bodies and Souls, or Spirited Bodies?* (New York: Cambridge University Press, 2006), 2.

²In this regard, see Murphy, *Bodies and Souls, or Spirited Bodies?*, 16–22. See also Joel B. Green, *Body, Soul, and Human Life: The Nature of Humanity in the Bible* (Grand Rapids, MI: Baker Academic, 2008). For an assessment of Green’s physicalism, see R. Scott Smith, “Joel Green’s Anthropological Monism: Biblical, Theological, and Philosophical Considerations,” *Criswell Theological Review* 7, no. 2 (Spring 2010): 18–36.

³As immaterial, an essence would *not* be spatially or temporally located (i.e., it is “metaphysically abstract”). As such, an essence would be completely outside the metaphysical parameters of ontologically reductive physicalism.

⁴My thanks to Garry DeWeese for his suggestions in this section.

⁵I will be focusing in this article on three examples of mental states with intentionality: thoughts, beliefs, and experiences we use to make observations.

⁶See also Nancey Murphy and Warren S. Brown, *Did My Neurons Make Me Do It? Philosophical and Neurobiological Perspectives on Moral Responsibility and Free Will* (Oxford: Oxford University Press, 2007), in which Murphy provides five distinctions (methodological, epistemological, causal, ontological, and atomist) concerning the “many faces of reductionism,” 47–8.

⁷Nancey Murphy, “Nonreductive Physicalism: Philosophical Issues,” in *Whatever Happened to the Soul?*, ed. Warren S. Brown, Nancey Murphy, and H. Newton Malony (Minneapolis, MN: Fortress Press, 1998), 129.

⁸See 78–84 in Murphy and Brown, *Did My Neurons Make Me Do It?*, in which she has a section on “emergence.”

⁹Nancey Murphy, *Anglo-American Postmodernity* (Boulder, CO: Westview Press, 1997), 176.

¹⁰*Ibid.*

¹¹*Ibid.*, 20. See also Murphy and Brown, *Did My Neurons Make Me Do It?*, 56, 72.

¹²Nancey Murphy, *Beyond Liberalism and Fundamentalism: How Modern and Postmodern Philosophy Set the Theological Agenda*, Rockwell Lecture Series, ed. Werner H. Kelber (Harrisburg, PA: Trinity Press International, 1996), 140.

¹³Murphy, *Anglo-American Postmodernity*, 21.

¹⁴*Ibid.*, 199.

¹⁵These examples are discussed in Murphy, “Nonreductive Physicalism: Philosophical Issues,” 135–7.

¹⁶*Ibid.*, 135.

¹⁷*Ibid.*, 137.

¹⁸*Ibid.*, 139.

¹⁹Nancey Murphy, “Human Nature: Historical, Scientific, and Religious Issues,” in *Whatever Happened to the Soul?*, ed. Brown, Murphy, and Malony, 10.

²⁰Murphy, “Nonreductive Physicalism: Philosophical Issues,” 137.

Article

Could We Know Reality, Given Physicalism? Nancey Murphy's Views as a Test Case

²¹Ibid., 150. She elaborates on this interaction: "This view of mental states arising from the functioning of the nervous system is consistent with what we know from science about the interactions between brain states and mental states: measurable effects on the central nervous system have psychological consequences; many psychological or mental states have physiological consequences."

²²Also, in Murphy and Brown, *Did My Neurons Make Me Do It?*, Murphy discusses nonreductive physicalism in the following places: 1-2; 7-9; 233-6.

²³Murphy, "Human Nature: Historical, Scientific, and Religious Issues," 18.

²⁴Ibid.

²⁵Ibid., 7-9.

²⁶Preface to Brown, Murphy, and Malony, ed., *Whatever Happened to the Soul?*, xiii. See also Murphy and Brown, "Avoiding Cartesian Materialism," chap. 1 in *Did My Neurons Make Me Do It?*

²⁷Murphy, *Beyond Liberalism and Fundamentalism*, 93.

²⁸For example, see Murphy, *Beyond Liberalism and Fundamentalism*, 124. She also uses the term "form of life."

²⁹See also R. Scott Smith, "Nonfoundationalism, Postfoundationalism, and the Truth of Scripture," in *But My Words Will Never Pass Away: The Enduring Authority of the Christian Scriptures*, vol. 2, ed. D.A. Carson (Grand Rapids, MI: Wm. B. Eerdmans, forthcoming, 2012).

³⁰Ibid., 92.

³¹Perhaps this lack of her addressing this topic might be due to her having imbibed much from the later Wittgenstein, who seemed to want to disabuse us from metaphysical cravings, from a search for the natures of things, instead drawing our attention to how we behave and talk in our forms of life. See Ludwig Wittgenstein, *Philosophical Investigations*, 3rd ed., ed. G. E. M. Anscombe and Rush Rhees, trans. G. E. M. Anscombe (New York: The Macmillan Company, 1958), §§65, 109. Brad Kallenberg's interpretation also is helpful in his *Ethics as Grammar: Changing the Postmodern Subject* (Notre Dame, IN: University of Notre Dame Press, 2001), 212. He was one of Murphy's students at Fuller.

³²Fred Dretske, private e-mail, Feb. 10, 2007 (bracketed insert mine).

³³Murphy might object to my use of Dretske, for he holds to a form of direct realism in which the external object can be directly present to us in an unconceptualized way, which, of course, she would deny. Still, his account can be useful in that he tries to explain how it is we can make epistemic contact with reality via a causal chain, even if we take into account her caveat that all epistemic access is done from an aspect.

³⁴Here, I put "minds" in scare quotes so as to not beg the question against physicalism. I simply mean whatever aspect of us we use in conscious awareness.

³⁵However, some mental states might seem quite generalized, such as a general sense of anxiety. This can occur, for example, due to chemical imbalances in the brain. But still, even those intentional states are differentiated; they are feelings of anxiety, and not of love or euphoria. Sometimes in psychological therapy, clients can experience feelings which they are not able to identify. For instance, I have experienced feelings of fear, yet I have not been able

always to pinpoint exactly their source or their specific object: am I feeling fearful of being rejected in general, or is that feeling being triggered by some specific situation? Even so, often in the therapy process, I have found that as I become more skilled in being aware of my feelings, I am better able to identify what specifically they are of or about. And even if not, they still have content to them—a feeling of fear versus one of joy.

³⁶By "object" I simply mean whatever can be brought, or made present, before the "mind"—or perhaps brain, to not beg the question here—in conscious awareness. I am referring to what we can know. That would include, for instance, everyday objects in our natural and social world such as tables, cars, water, nitrogen, trees, or birds. It also would include our own mental states, such as when we reflect upon a thought or concept, a memory, or an experience. It also would include persons. But I do not mean to imply any unethical attitudes or behavior, such as a mistreatment of persons and especially God as mere "objects" or "things," to manipulate however we wish.

³⁷I am not the only one to draw these distinctions within our intentional states; see also Edmund Husserl on his discussions of matter, quality, and *sensa* in his *Logical Investigations*, trans. J. N. Findlay (London: Routledge & Kegan Paul, 1970), 740.

³⁸Daniel C. Dennett, *The Intentional Stance*, 3rd printing (Cambridge, MA: MIT Press, 1990), 319, note 8. See also W. V. O. Quine, "On the Reasons for Indeterminacy of Translation," *Journal of Philosophy* 67 (1970).

³⁹Interestingly, conceptualizations also are of or about things; they are intentional, and intrinsically so. So, where does this intentionality come from? The dualist has an answer, for intentionality is at home in such an ontology. And, a dualist's answer would help show that an immaterial mental state could interact with and even change that correlated brain state.

⁴⁰See R. Scott Smith, "Finitude, Fallenness, and Immediacy: Husserlian Replies to Westphal and Smith," *Philosophia Christi* 13, no. 1 (Summer 2011), in which I develop this argument in much more detail.

⁴¹By "grammar" in a Wittgensteinian sense, I mean the rules of how we talk in our "form of life" (or community).

⁴²See Murphy, *Bodies and Souls*, 131-2.

⁴³See Husserl, *Logical Investigations*; see also Dallas Willard, *Logic and the Objectivity of Knowledge* (Athens, OH: Ohio University Press, 1984), 231.

⁴⁴For a more complete treatment, see Smith, "Finitude, Fallenness, and Immediacy," in which I do develop such a case, along with a fuller exposition of Husserl's views. See also chapter nine in R. Scott Smith, *Naturalism and Our Knowledge of Reality: Testing Religious Truth-Claims* (Aldershot, UK: Ashgate, 2012). And see —, "Nonfoundationalism, Postfoundationalism, and the Truth of Scripture."

⁴⁵Dallas Willard argues along these same lines in "How Concepts Relate the Mind to Its Objects: The 'God's Eye View' Vindicated?," *Philosophia Christi* 1, no. 2 (1999).

⁴⁶Cartesian substance dualism usually is the variety that many reject today, and rightly so. Descartes posited that the soul and body are radically different substances, and they interact via a gland in the brain. But Descartes's version is not the only kind of substance dualism available. See,

e.g., J. P. Moreland and Scott Rae, *Body and Soul* (Downers Grove, IL: InterVarsity Press, 2000), for more on Cartesian, Aristotelian, and Thomistic substance dualism.

⁴⁷Following Leibniz's law of the "indiscernibility of identicals," two entities (e.g., persons) have to have the same properties in common, so that there really are not two entities, but only one. But, how can the soul be the basis for one's personal identity through time and change, since "soulish" properties, like mental states, also can come and go, or change? The typical substance dualist answer is that the soul is one's *essential* set of *capacities*, and what matters for one's personal identity is that one's essential set of capacities remain the same. If someone loses an essential capacity (e.g., to have relationships with other human persons and God), that person no longer exists, having lost something essential to them as a human person. But it does not mean that that person has to develop one's capacities in order to be a person. Such development could be called "nonessential" change. For instance, I have the capacity for rational thought, even in philosophy. Through much effort, study, and practice, I developed those capacities into acquired properties. Would I be the same person had I never acquired these properties, or even if I were to lose them in the future (e.g., through dementia)? Yes, for my essential set of capacities would have remained the same.

⁴⁸I owe this objection to an anonymous reviewer of an earlier draft of this article.

⁴⁹This objection was suggested by a reviewer.

⁵⁰See also Smith, *Naturalism and Our Knowledge of Reality*.

⁵¹Besides entailing that we could not have theological knowledge, physicalism also would require vast doctrinal reconstructions which would take us far beyond the scope of this article, and, I think, well beyond orthodoxy. For a starter, see Smith, "Joel Green's Anthropological Monism: Biblical, Theological, and Philosophical Considerations," where I briefly discuss sin, the incarnation of the Son of God, his priesthood, his resurrection, and the hope of eternal life.

⁵²Also, this article has implications for "Relating Body and Soul: Insights from Development and Neurobiology," by Rodney Scott and Raymond Phinney Jr. (*Perspectives on Science and Christian Faith* 64, no. 2 [2012]: 90–107). I will focus on three now. First, they seem to realize the importance of having an adequate basis for our being the same person through time and change (p. 95), yet they overlook the importance of personal identity when they turn to assess monist and dualist versions of human persons (p. 96). This leads to confusion about the supposed "greater difficulty" for substance dualists (pp. 95–6) in explaining the sameness of a resurrected body. They merely raise a supposed problem, without any real assessment of the issue or explanation of dualist options, or whether the other problems that can be conceived of for the various views are truly of equal weight with that for dualists. But the Thomistic substance dualist has a ready explanation — as I have suggested, sameness of person is due to sameness of soul, and therefore I do not have to have exactly the same physical body parts to be me. Indeed, even Jesus's resurrected body did not have all the same properties as his pre-resurrection body.

Yet, they appeal in passing (without explanation) to the "philosophical resources" available to monists to account for the intermediate state, or, relatedly, sameness of person after death, and even after the resurrection (p. 95). It is one thing to assert this; it is another to explain how monists' views actually are cogent. Moreover, a monist like Green denies that there is an intermediate state (e.g., *Body, Soul, and Human Life*, 165), claiming that when the body dies, the person dies (p. 147). Instead, his argument for resurrection of the same person seems to rest on two possible options: (1) an immediate resurrection upon a person's death; and/or (2) our narrative unity that grounds our sameness (p. 180). But these moves have serious problems; the former does not seem to be taught in scripture, whether in the Old Testament (e.g., Dan. 12:2) or the New (e.g., John 11:24; 1 Cor. 15:52). The latter fares even worse; if our narrative is to maintain our personal identity, then somehow it needs to remain the same through change. But whatever else narratives are, they must be physical stuff for monists like Green. And as physical things, narratives would be changing continually. Plus, even if a narrative is not physical, it still is constantly changing, as new episodes are being authored or told. Either way, a narrative cannot sustain the needed personal identity of the person.

In that light, perhaps what Jesus said to the Sadducees in Matt. 22:23–33 (cf. Mark 12:18–27; Luke 20:27–40) is indicative of an answer. He was addressing persons who did not believe in the resurrection, yet he told them that God is the God of the living, including Abraham, Isaac, and Jacob. But for a monist like Green, since their bodies had died, the persons also would be dead. And since they would not have been resurrected yet, we are left with the option that these people were alive, though not embodied. That seems to be strong support against monism and in favor of substance dualism.

As a second implication, Scott and Phinney ("Relating Body and Soul," 99) appeal to the work of Malcolm Jeeves and his dual aspect monism as key evidence that undermines a "strong form of dualism." Unfortunately for them, Jeeves's work does nothing to undermine the kind of substance dualism I have outlined in this article. Indeed, his duality of descriptions (or conceptualizations) of physical states should suffer from the same problems I have detailed against Murphy's views.

Third, and briefly, they fault Moreland and Rae (*Body and Soul*) for holding to a creationist view of the origin of the soul, when actually they are traducianists. This mistake also may have significant implications for their assessment of Moreland and Rae's view.

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Boyd SeEVERS



Joanna Klein

Communication

Genetics and the Bible: The Curious Case of the Left-Handed Benjamites

Boyd SeEVERS and Joanna Klein

One of the most colorful stories in the Bible tells how Ehud, the left-handed Israelite judge from the tribe of Benjamin, freed Israel from Moabite domination (Judg. 3:12-30). When Ehud delivered Israel's annual tribute to the Moabites, he assassinated the fat Moabite king by using a double-edged dagger he had hidden on his right thigh. This story is famous not only for its gory detail ("the fat closed over the blade ... and the dung came out ... 'Surely he is relieving himself'"), but also for its hero who succeeds, in part, because he is *left-handed*.¹

This mention of left-handed Ehud is one of only three places where left-handed people appear in the Bible. All of these left-handers appear in military contexts,² and *all*, curiously, *come from the tribe of Benjamin*. In addition to the left-handed Benjamite Ehud, Judges 20:16 refers to 700 Benjamites who could use the sling with great accuracy ("Every one could sling a stone at a hair and not miss") and all were left-handed. Finally, 1 Chronicles 12:2 states that some of the Israelites who came to support David when he ruled in Hebron included some two dozen ambidextrous warriors who could use either the bow or the sling "with either the right or the left hand; they were Benjamites."

This consistent intersection of left-handedness and the tribe of Benjamin

raises the question, did this one particular tribe produce an unusually high number of left-handers? If so, why? Could it have been because of some genetic or social factor, or perhaps both? Might modern genetic studies give us some insight into this curious case of the left-handed Benjamites? Perhaps it can.

The factors that influence handedness have been studied for years,³ although there is still no clear understanding of all the determinants. Current research suggests that handedness is influenced by a complex interplay of both environmental and genetic factors. Studies of twins suggest that genetic effects account for 25% of the variation of handedness, and unique environmental influences account for the remainder.⁴ Some proposed environmental effects on handedness are societal, such as modeling handedness, forced handedness, and stigmatization.⁵

Other studies based on prenatal ultrasounds show that handedness formation occurs prenatally, before societal influences on handedness are present.⁶ Familial aggregation of handedness is also consistent with a genetic component. In one study, it was found that two left-handed parents have a 26% chance of having a left-handed child, while the prevalence is 20% with one left-handed and one right-handed parent, and 10% with two right-handed parents.⁷ Most recently, genetic mapping studies have provided support for a genetic basis of handedness. Several genes and chromo-

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somal locations are associated with being left-handed (LRRTM1, 2p12, 12p21-23, and 10q26).⁸ It appears that there is a genetic component to handedness, but it is a very complex interaction between multiple genes that is influenced heavily by environmental factors.

Thus, it seems possible that the tribe of Benjamin may well have produced more left-handed people than did other tribes. Perhaps they were genetically inclined to left-handedness, and the tribe may also have encouraged it. The Hebrew term for “left-handed” in Judges 3:15 and 20:16 literally means “restricted in his right hand.” Did the Benjamites bind the right arms of their sons to their sides to encourage use of the left hand?⁹ The phrase “restricted in his right hand” seems to allow for the possibility, although it may just as easily mean something similar to “can’t use his right hand like normal.”

Some modern authors suggest that Benjamites and others may have encouraged left-handedness because it would be advantageous in combat.¹⁰ Since soldiers would be less apt to confront a left-hander (as with Ehud), left-handed warriors may well have had an advantage in fighting hand-to-hand. In addition, ancient city gates were often built with a right-hand turn, perhaps to limit the area in which right-handed attackers could effectively use their offensive weapons when fighting within the gate, another possible benefit for using left-handed troops.

However, the idea that left-handedness was militarily advantageous loses force when one notes that the references to units of left-handed Benjamites (Judg. 20:16; 1 Chron. 12:2) describe slingers and archers. Such troops used long distance weapons, where the advantage of using the less common hand is hard to see.

So did the tribe of Benjamin produce more left-handers, as the three biblical passages might suggest? Perhaps the Benjamites were more genetically inclined to produce left-handed people, and perhaps they also encouraged left-handedness, possibly as a mark of tribal distinction and pride. It is also possible that the biblical authors merely noted left-handed Benjamites because of the irony of the handedness and the meaning of their name. Benjamin means “son of (my) right hand,” making these lefties

“left-handed right-handers.” Whatever the reason for the link of left-handers just to the tribe of Benjamin, the connection makes for a curious case, on which modern genetic studies may shed some light. *

Notes

¹Apparently hiding the weapon on the side from which a left-hander would naturally draw it helped the plan succeed, perhaps because the Moabite guards may only have checked the other side.

²For further discussion on the texts referenced here, as well as additional information on the organization, weaponry, and tactics used by various ancient Near Eastern nations in warfare at the time of the Old Testament, see Boyd Seevers, *Old Testament Warfare* (Grand Rapids, MI: Kregel Publications, forthcoming).

³Genetic information and analysis courtesy of Joanna Klein, associate professor of genetics and biology at Northwestern College, St. Paul, MN.

⁴S. E. Medland, D. L. Duffy, M. J. Wright, G. M. Geffen, D. A. Hay, F. Levy, C. E. van-Beijsterveldt, G. Willemsen, G. C. Townsend, V. White, A. W. Hewitt, D. A. Mackey, J. M. Bailey, W. S. Slutske, D. R. Nyholt, S. A. Treloar, N. G. Martin, D. I. Boomsma, “Genetic Influences on Handedness: Data from 25,732 Australian and Dutch Twin Families,” *Neuropsychologia* 47, no. 2 (January 2009): 330–7. Epub 2008 Sep 9.

⁵E. Vuoksima, M. Koskenvuo, R. J. Rose, J. Kaprio, “Origins of Handedness: A Nationwide Study of 30,161 Adults,” *Neuropsychologia* 47, no. 5 (April 2009): 1294–301. Epub 2009 Jan 16.

⁶P. G. Hepper, G. R. McCartney, E. A. Shannon, “Lateralised Behaviour in First Trimester Human Foetuses,” *Neuropsychologia* 36, no. 6 (1998): 531–4.

⁷I. C. McManus and M. P. Bryden, *The Genetics of Handedness, Cerebral Dominance, and Lateralization*, vol. 6 of *Handbook of Neuropsychology*, ed. I. Rapin and S. J. Segalowitz (Amsterdam: Elsevier Science Publishers, 1992), 115–44.

⁸C. Francks, S. Maegawa, J. Lauren, B. S. Abrahams, A. Velayos-Baeza, S. E. Medland, et al., “LRRTM1 on Chromosome 2p12 Is a Maternally Suppressed Gene That Is Associated Paternally with Handedness and Schizophrenia,” *Molecular Psychiatry* 12, no. 12 (2007): 1129–39; D. M. Warren, M. Stern, R. Duggirala, T. D. Dyer, L. Almasy, “Heritability and Linkage Analysis of Hand, Foot, and Eye Preference in Mexican Americans,” *Laterality* 11, no. 6 (2006): 508–24; T. Van Agtmael, S. M. Forrest, R. Williamson, “Parametric and Non-parametric Linkage Analysis of Several Candidate Regions for Genes for Human Handedness,” *European Journal of Human Genetics* 10, no. 10 (2002): 623–30.

⁹See Baruch Halpern, *The First Historians: The Hebrew Bible and History* (University Park, PA: Pennsylvania State University Press, 1988), 41, who notes that the Maori of New Zealand did this. Also note the discussion in Daniel Block, *Judges, Ruth*, vol. 6 of *The New American Commentary* (Nashville, TN: Broadman & Holman, 1999), 160–1.

¹⁰See Halpern, *First Historians*, 40–3; and K. Lawson Younger, *Judges and Ruth*, of *The NIV Application Commentary* (Grand Rapids, MI: Zondervan, 2002), 113–4.



GENERAL SCIENCE

THE BEAUTIFUL INVISIBLE: Creativity, Imagination, and Theoretical Physics by Giovanni Vignale. New York: Oxford University Press, 2011. 303 pages, illustrations, index. Hardcover; \$35.00. ISBN: 9780199574841.

A common perception is that science requires following prescribed formulaic patterns of thought and behavior, whereas the arts emphasize originality and free thinking. But every practicing scientist knows otherwise: successful scientific work depends upon challenging authority, overturning ideas, and charting new courses. In *The Beautiful Invisible*, University of Missouri theoretical physicist Giovanni Vignale describes the importance of creativity and imagination in his field. This he illustrates via ideas and techniques in mechanics, thermodynamics, optics, and quantum physics, disparate subfields of physics which he draws together in intricate ways. And not only does he write about creativity and imagination, he frequently delights the reader by poetic references to the fine arts. For example, to relate theory and fact, he writes,

When I think of theoretical physics, [I see] a structure closed on itself like the castle of Magritte's painting [*The Castle in the Pyrenees*]. At the bottom I see the heavy, rough mass of the real facts in need of explanation. At the top I see a graceful composition of roofs and turrets—the theory ... The rock supports the castle, but the castle holds the rock and lifts it to a higher level ... A mysterious power keeps it suspended above the waves of the ocean: it is the power of internal consistency. (p. 9)

Vignale demonstrates not only a familiarity with a wide range of ancient and modern literature and art, but also an uncanny way of associating their themes and details with theoretical physics.

The Beautiful Invisible is certainly not a book on science and Christianity, but interestingly contains scattered unforced references to religion, often to Christianity in particular. After noting that it is nearly impossible to come up with a good theory in physics, he writes,

Just as to many people the origin of life would be inexplicable without a Creator, so to most scientists the success of a theory would be inexplicable without an objective reality behind it. (p. 17)

Many aspects of Vignale's treatment of physics, and of the nature of scientific inquiry in general, resonate well with Christian perspectives in the natural sciences, such as his careful analysis of abstraction and formalism, and the nature of the laws of physics. For example,

The laws of physics are never laws about the world as it is, but about the world in a certain limit, or under a certain idealization. (p. 27)

He connects the existentialism of Pascal's *Pensées* with an important concept of theoretical physics:

The very presence of "I" at this particular instant, out of millions of years during which I could have existed, is a sort of miracle of broken symmetry. (p. 75)

This passage proceeds through an insightful analysis of the hierarchical organization of laws—affirming physics Nobel laureate P. W. Anderson's irreducibility idea that "every branch of science has its own set of fundamental laws ... which cannot run contrary to the laws of the underlying levels [but are] impossible ... to derive [from them]" (pp. 77ff.)—right to the miracle of the virgin birth and resurrection. He aptly relates this to the way in which the Second Law of Thermodynamics is emergent, as it "breaks the laws of mechanics ... without ever violating them" (p. 89).

The title theme of the book is that while the ultimate reality of the universe—the focus being on its physical features—remains finally invisible to us, there is a striking beauty and simplicity to the theoretical analysis that is aptly equipped for its description and explanation, without resorting to notions of antirealism, instrumentalism, or (Hawking's) conflation of model and reality. After the first third of the book, there is less philosophy and more physics, so the demands on the reader increase. Here Vignale discusses and creatively connects technical details (without the math) of relativity, electromagnetic waves, and quantum physics, culminating in illuminating discussions of quantum entanglement, teleportation, and computation, as well as superconductivity. At times, however, the narrative flags due to the author's desire to communicate just about everything on a topic. Nevertheless, the intrinsic value of the scientific enterprise is superbly highlighted as "the search for the truth having more value than the truth itself" (p. 293).

The Beautiful Invisible would be enjoyed both by those already familiar with modern physics as well as those seeking insight into the way in which science is as much a human cultural activity as the arts. Unfortunately, proofreaders missed a few annoying typos, and far too many of the 87 figures are incorrect or unclear, annoying experts and not guiding the newcomer well.

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HISTORY OF SCIENCE

DENYING SCIENCE: Conspiracy Theories, Media Distortions, and the War Against Reality by John Grant. Amherst, NY: Prometheus Books, 2011. 374 pages, with index. Hardcover; \$16.50. ISBN: 9781616143992.

Denying Science chronicles the histories of science-related topics for which the consensus opinion of mainstream science has not been accepted. Some examples include the science related to silicone breast implants, forensic science, immunizations, AIDS, tobacco, evolution, and global climate change. Three nonscientific causes for the denial of science are proposed: religion, politics, and greed. Scientific methods commonly used to deny the science are also critiqued.

John Grant is the pen name of Paul Barnett, an accomplished author of both fiction and nonfiction. Barnett,

who has also published under the name of Eve Devereux, was born in the UK in 1949, and has lived in the US since 1999. His work in the area of science-fiction fantasy has earned him two Hugo awards. His nonfiction writing has involved projects chronicling science fiction fantasy and animation, as well as two books closely related to this title: *Corrupted Science: Fraud, Ideology and Politics in Science* (2007) and *Bogus Science: Or, Some People Really Believe These Things* (2009).

For each denial of science the author critiques the reasoning offered by the skeptics. Except for a stated rejection of science based on religion, the science skeptics propose that they are using scientific methods to develop arguments supporting their denial. Grant does an excellent job of discrediting these methods by showing how skeptics often knowingly reference fraudulent or retracted scientific papers found in credible scientific journals, provide references to “scientific” papers which are actually propaganda literature funded by a biased source for the purpose of appearing to be a credible scientific source, and appeal to scientific authorities who are not credible in their fields.

A segment of the book, familiar to ASA readers, is a discussion of methods used by young earth creationists such as Ken Ham and Duane Gish to deny a mainstream scientific understanding of origins. Grant moves from a discussion of young earth creationism to the more recent intelligent design (ID) movement by examining the work of ID proponents Michael Behe and Bill Dembski. Grant makes the case that ID proponents and the young earth creationists make use of similarly flawed methodologies and that both deny the science due to theological motivations rather than credible scientific concerns.

Grant also writes about problems in the legal system. One problem occurs when politicians, who try to appear tough on crime, question the results of forensic science investigations. This denial has led to the probable wrongful execution of Cameron Todd Willingham in Texas. A second legal problem involves the ability of the science deniers to use libel laws in their defense, limiting the ability of mainstream scientists to publicly demonstrate the flaws in the deniers’ arguments.

Grant attributes the cause for climate change denial to the greed of the fossil fuel industry, primarily ExxonMobil and the Koch brothers. Comparisons are made between the methods used by the fossil fuel industry to deny the ill effects of an increase in atmospheric CO₂ on the climate, and the methods used by the tobacco industry to deny the ill effects of tobacco. Grant devotes a considerable amount of the book to profiling corporations, think tanks, scientists and politicians, whom he includes among the science deniers.

Grant’s previous writing experience is on display in this well-referenced book, written with a flowing, sarcastic, and witty narrative. Grant is an excellent storyteller describing how fraudulent and flawed scientific references come to be used to deny the mainstream science consensus. However, the sarcastic chapter titles are not often indicative of the chapter’s content, and the sarcastic wit sometimes becomes a rant that detracts from Grant’s credibility.

This book is recommended for those looking for resources in public science policy and for information on public personalities involved in denying mainstream science, in particular the issue of global warming. References to deficiencies of the forensic science relied upon by the legal system and the innocence project are also helpful.

Reviewed by Gary DeBoer, Professor of Chemistry, LeTourneau University, Longview, TX 75607-7001.

RHETORICAL DARWINISM: Religion, Evolution, and the Scientific Identity by Thomas M. Lessl. Waco, TX: Baylor University Press, 2012. 322 pages. Hardcover; \$39.95. ISBN: 9781602584037.

My first response to seeing a book on “Darwinism” written by a professor of communications instead of a biologist was, quite frankly, a polite, collegial sigh. Everyone, it seems, wants to add his or her nonscientific (sometimes pseudoscientific) twist to the controversial, though decidedly biological, subject. Everyone seems to have an opinion on evolution though most do not properly understand it. But Thomas Lessl makes it clear from the beginning that he has no problem with biological evolution and does not feel qualified to address the details of the science. Rather, he is writing about “evolutionism” (a synonym for “rhetorical Darwinism”), which is the nonscientific application of the ideas of evolution beyond the purview of evolutionary science, presented as if they were science.

Evolution becomes myth, says Lessl, when the vocabulary of evolution is applied to culture, and when the words take on a different meaning. Thus, evolutionism is a form of “scientism,” the mistaken idea that the only valid and reliable form of inquiry is science and that only scientific methods should be used in all fields of knowledge, including the humanities and history. In this context, theology may be viewed as only one earlier step in the maturation of human thought which culminates in science.

Most of the text is devoted to the historical development of scientism beginning with Francis Bacon (one of the architects of modern scientific method). Bacon, says Lessl, Christianized proto-scientism. Bacon’s “two books” doctrine said that science has its roots in traditional Christianity. God has revealed himself both in scriptural revelation and in nature, nature being a second scripture. Thus, the reading of nature is sacramental. And since science, the study of nature, has its roots in Christian history, it can assume a “priestly ethos.” This idea allowed some Protestants to develop a “millenarian” view of history in which the traditions of the past and their religious institutions (such as Catholicism) could be ignored while the envisioned Golden Age of the future led by Baconian science would be the standpoint by which the present is to be judged.

The idea underwent further transformation a century after Bacon during the French Enlightenment, especially in the writings of the Marquis de Condorcet. Natural revelation, rooted in religious tradition, was said to rival and then to supersede special revelation as the accepted basis of cultural authority, a “process of displacement.” Science and positivism (the idea that all rational ideas

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must be scientifically verifiable) became, in a sense, the “New Christianity.” Thus Divine providence is replaced with the concept of “progress,” and the implication is that only science can lead humanity into the future. With this idea, science went from being properly experimental and descriptive to being the social force that will lead humanity to a better tomorrow.

Next Lessl transports the reader into the world of nineteenth-century English biologist and anatomist Thomas Henry Huxley, a contemporary of Darwin. Huxley was more interested in what he conceived as the social implications of evolution than in the mechanism as proposed by Darwin. He saw historical evolutionism as the key to the absolute supremacy of science in human thought. Although he rejected Darwin’s mechanism of natural selection, Huxley saw Darwin and his proposed mechanism as symbols of the power of scientific naturalism and progress. Evolution teaches us our place in the universe and the goal of history. To challenge Darwin was to challenge the destined course of history. For Huxley, evolutionism had become “a new Reformation.”

Unfortunately, this general attitude persists. Today’s biologists, Lessl reminds us, “are not particularly vigilant in distinguishing evolutionary science from evolutionism.” Many biologists who do battle with creationist pseudoscience are guilty of propagating the equally egregious pseudoscience of evolutionism, which survives within the “halo” of evolutionary science so that accepting evolution easily spills over into embracing evolutionism. The boundary between the two may not be easily discernible. A major reason for the continued propagation of the myth of evolutionism, says Lessl, is that science is an expensive endeavor which depends on the “patronage” of industry and government. Industries will fund science if they believe they can benefit financially from its fruits whereas government expects science to produce concrete results that will benefit the military, the voters and taxpayers, and the reelection of politicians.

But science is often simply the search for pure knowledge, and without a pragmatic outcome it is of little interest to most of the benighted population. The halo of evolutionism or scientism suggests that human history arose from nature and that science has “a prophetic role in liberal democracy.” The “evolution of liberty” depends on the evolution of science as the social framework of the human experience. Science as the “infinite source of truth” makes scientists the prophets of historical progress. To deny the social implications of science is to interfere with progress. In a society such as ours, which depends so heavily on science (without necessarily understanding its workings), equating evolution with progress gives the myth of evolutionism a strong appeal.

But, Lessl argues, evolutionism as well as creationism has had the undesirable effect of prejudicing people against valid evolutionary science. When scientists (as some do) claim that evolution can address ultimate questions, questions normally within the purview of philosophy and religion, this tends to falsify those fields of inquiry and threatens the religious faith embraced by most Americans. The erroneous suggestion is that religious belief recedes as science advances. This is totally unnecessary and counterproductive since, properly understood,

evolution is simply the process of biological change, not a theory of ultimate origins or human purpose. Thus, he cautions, scientists would be well advised to be as vigilant in exposing and repudiating evolutionism as much as any other pseudoscience.

This book is not without its flaws. It is rather repetitive and Lessl segues into unnecessarily detailed discussions of esoteric ideas such as “interactionist theory as metaphor” when “the subject of concern (tenor) figuratively appropriates a name (vehicle)” or when he discusses *nomos-cosmos*, the “conflating of the cultural being of science (*nomos*) with that of nature (*cosmos*),” which I found rather distracting and not very informative.

But Lessl’s central thesis is correct and well articulated. I do believe that most biologists are aware at some level of consciousness of the nonscientific nature and the ubiquitousness of scientism, and of evolutionism in particular, although, in my experience, they rarely speak of it. The book brings this issue to the forefront and makes the reader confront the unjustified claims made by some scientists for evolution, and recognize their adverse effects. Therefore, I recommend the book to all biologists, especially to biologists and lay readers who have been swayed by popular writers such as Dawkins, Harris, Hitchens, and their ilk who propagate the scientific fundamentalist myth of evolutionism by promoting science as the proper tool for answering ultimate questions about origins, purpose, and existence. As evolutionary biologist Stephen Jay Gould often reminded us, recognizing the boundaries of science does nothing to diminish science. Rather it allows us to properly define it.

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PHILOSOPHY & THEOLOGY

MONOPOLIZING KNOWLEDGE: A Scientist Refutes Religion-Denying, Reason-Destroying Scientism by Ian Hutchinson. Belmont, MA: Fias Publishing, 2011. 261 pages. Paperback; \$18.95. ISBN: 9780983702306.

In his marvelous work *Science and Scientism in Nineteenth-Century Europe* (2007), reviewed earlier in this journal, Richard G. Olson uncovered and explored the roots and patterns of the scientism that emerged in nineteenth-century Europe, particularly in the aspirations to scientific credibility evident in Saint-Simon socialism, positivism, and even biblical higher criticism. In *The Unraveling of Scientism: American Philosophy at the End of the Twentieth Century* (2003), Joseph Margolis continues and attempts to complete this narrative by sounding the death knell for analytic philosophy, of which scientism is a prime example, in the work of W. V. Quine and others in the mid- to late twentieth century. While both narratives are ultimately critical of the agenda and methodologies of scientism, they adopt a historical/narrative stance that imparts a certain academic objectivity.

Not so with the present volume. Ian Hutchinson finds scientism to be alive and well, perhaps even the dominant worldview of early twenty-first-century America, and

seeks to demolish it in the cause of faith and truth. "It [scientism] is an awkward, ugly word and that's fine with me, because I think it's an awkward, ugly and erroneous world view" (p. vii). Elsewhere, "scientism is a ghastly intellectual mistake" (p. 1), a harmful contributor to unnecessary confrontations between science and religion but also limiting to other means of seeking knowledge that lies outside of that which is claimed to be "scientific." Olson and Margolis had defined scientism largely within the parameters earlier identified by economist F. A. Hayek: the attempt to lay claim to the epistemological credibility of the natural sciences through adoption of presumptively parallel methodologies by other disciplines and fields of inquiry. Hutchinson expands this definition somewhat:

Scientism is the belief that all valid knowledge is science. Scientism says, or at least implicitly assumes, that rational knowledge is scientific, and everything else that claims the status of knowledge is just superstition, irrationality, emotion, or nonsense. (p. 1)

He thus seeks to restrict the adjective "scientific" to the activities of the natural sciences alone.

There is a polemical tone to this work. This doubtless reflects the book's intended audience, which is the educated layperson (whom Hutchinson anachronistically addresses as "gentle" or "dear reader" periodically throughout the text). The volume has an epistolary feel to it, as though a more knowledgeable elder brother were warning the less informed sibling against running with the wrong crowd and admonishing her toward a less popular but more helpful society of friends. As a result, it touches lightly on a wide variety of subtopics, addressing few of them with the nuance or subtlety that the academically trained readers of this journal are likely to prefer. As an intellectual historian, I found myself quibbling and cringing on occasion as I read his "fly-over" survey of the evolution of science as means of inquiry, epistemological method, and academic profession. But might there be a need for a more accessible exploration of the intents and limits of scientism?

Perhaps. But such an exploration has already been offered—and in more helpful volumes. One such is Michael D. Aeschliman's *The Restitution of Man: C. S. Lewis and the Case against Scientism* (1998), which, yes, draws heavily upon Lewis's argument in *The Abolition of Man* but ranges far beyond him, a well-written, well-researched study designed for the literate layperson. Frederick Olafson's *Naturalism and the Human Condition: Against Scientism* (2001) is a bit tougher going but provides a broad, secular argument against scientism as overly reductionist in its understanding of human nature. Whether he is aware of these other volumes (of those noted thus far, only Olson appears in the bibliography), Hutchinson's volume appears to be motivated, at least in part, by his own experience as a believing scientist in a major research university who has encountered unthinking opposition to religious faith in the name of "science."

Hutchinson's scientific credentials are indeed impressive. He is professor of nuclear science and engineering at the Massachusetts Institute of Technology, where he is also coprincipal of the Alcator Project in the Plasma Science and Fusion Center. This project, according to his

biographical statement, is "an international experimental facility whose magnetically confined plasmas, with temperatures reaching beyond 50 million degrees Celsius, are prototypical of a future fusion reactor." He has published over 160 journal articles on a variety of plasma phenomena and a standard text on measuring plasmas, *Principles of Plasma Diagnostics* (Cambridge University Press). He is a fellow of the American Physical Society and of the Institute of Physics, and author of the computer program T_H: The T_EX to HTML Translator, widely used for web-publishing of mathematics.

This extended biographical summary is helpful here, lest this current effort be too easily dismissed. It is self-published ("Fias Publishing" shares an address with the author). The book suffers from too little focus. The author's vast reading is both an advantage and a liability in such a work, for he ranges so widely that his thesis is sometimes left far behind as he digresses on his critique of the "history and philosophy of science crowd," Phillip Johnson's critique of evolution, the philosophy of Richard Rorty, energy and the environment, mathematician Kurt Gödel, eugenics, socialism, the Luddites, Richard Dawkins, clarity and warrant, freeing the oppressed, the Babylonians, DNA, nineteenth-century historian Thomas Babington Macaulay, sociobiology, and Margaret Thatcher, among a plethora of other widely diverse topics. (The book's index is woefully insufficient.) The point is that the author knows of what he speaks, even if he speaks so expansively. Curiously, he has both written too much (his thesis could be well supported in a tightly written article) and too little (he touches too lightly on his multitude of topics to provide a foundational knowledge that permits the less educated reader to follow along).

My recommendation to you, then, gentle reader, is that you eschew this particular volume as less helpful than other options in providing a critique of popular scientism in our time. Yet I conclude with a note of appreciation for Hutchinson's agenda here. As a self-identified "follower of Jesus Christ," he speaks passionately and courageously against a worldview that has wrongly appropriated the credibility of his profession to advance ideas that undermine or confine his faith. As he perceives no contradiction between his profession and his faith, his concluding statement is both explanatory of the volume's title and, I suspect, reflective of his deepest intellectual commitments: "In short, my argument is that, rather than *monopolizing* knowledge, as scientism tries to do, true rationality should insist upon *integrating* knowledge" (p. 236, italics his).

Reviewed by Anthony L. Blair, President and Professor of Church History, Evangelical Theological Seminary, Myerstown, PA 17067.

THE SPIRIT OF CREATION: Modern Science and Divine Action in the Pentecostal-Charismatic Imagination by Amos Yong. Pentecostal Manifestos 4. Grand Rapids, MI: Eerdmans, 2011. xiv + 237 pages. Paperback; \$32.00. ISBN: 9780802866127.

Amos Yong is probably the most prolific Pentecostal theologian today, having authored books on theology of

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religions, theology of disability, political theology, theological hermeneutics, and Pentecostal theology in general. From 2005–2009, Yong was codirector of a research initiative facilitating a dialogue between Pentecostalism and science, funded by the John Templeton Foundation. Yong's leadership and publishing during this research initiative culminated with two coedited volumes on science and Pentecostalism as well as the present volume, *The Spirit of Creation*.

While many view science as naturalistic in its conclusions, Yong believes that the Pentecostal worldview (broadly defined to include many renewal movements, as the subtitle implies), with its frequent emphasis on the supernatural, is defensible in today's scientific context. His book focuses on questions related to methodology in the theology/science dialogue, divine action (including miracles), the evolutionary emergence of humanity, and an emergent cosmology that includes angelic and demonic spirits. In his first chapter, Yong recounts the historical (and still current) transition among Pentecostals away from anti-intellectualism and skepticism of science toward engaging in dialogue with scientific disciplines.

The second chapter seeks to justify a pluralistic methodology in the theology/science dialogue. Yong observes how insights from neuropsychology, cognitive psychology, and the social sciences all provide assistance in explaining Pentecostalism (and speaking in tongues in particular). However, since no one discipline is able to explain Pentecostalism fully, Yong maintains that the "multidimensional character of human life" (p. 35) demands a plurality of methods (an analogy to the many tongues of Pentecost) for the theology/science dialogue.

Chapters three and four focus on conversations regarding divine action. Yong first builds on christological and eschatological proposals regarding divine action, emphasizing the eschatological nature of pneumatological divine action: the Spirit makes the kingdom of God present now by making the "new creation" present now (chapter three). Moving on to discuss a philosophy of miracles (chapter four), Yong argues that the laws of nature are not "universals that actually govern the world" (p. 106). Instead, Yong proposes that the laws of nature are regular and habitual. Hence, Yong concludes that divine miracles are not instances of God violating the laws of nature; rather, miracles constitute the coming new order of creation, which is accompanied by new laws.

Yong's pneumatological and eschatological proposal regarding divine action is certainly an important contribution to the divine action conversation; however, it may not fully account for all miracles. Not all miracles are eschatological (even if they might be considered proleptic) in the sense that not all miracles have occurred in the eschaton as inaugurated in/through Christ and the Spirit (cf. p. 168). One also wonders how miracles of Satan (e.g., 2 Thess. 2:9) – which are, of course, not instances of divine action – might be explained in the emergent framework Yong proposes.

Chapter five presents Yong's pneumatological theology of evolutionary emergence. After affirming the standard scientific history of the cosmos, Yong outlines Philip Clayton's philosophy of emergence (resulting in a monistic

philosophy of the mind). Following this, Yong presents the Spirit as "presiding over and empowering" (p. 169) the process of emergence in creation through a theological reading of the Genesis creation narratives. While Yong's account is plausible, he seems to presume, rather than present, an argument in favor of Clayton's monism.

In the final chapter, Yong presents an emergent cosmology that includes angels and demons. The chapter will be controversial from a scientific perspective as Yong explores research from parapsychology (e.g., telepathy, psychic healing, out-of-body experiences) to illuminate the possibility of considering spiritual realities as emergent from the natural world. In the end, Yong contends that "angelical spirits are emergent from their material substrates, constituted by but also thereafter irreducible to their outward physical forms" (p. 216), similar to how the mind relates to the body. Yong seems to depart from Clayton's emergence philosophy when he proposes that (emergent) demonic spirits do not exercise a top-down influence (downward causation is a key point in Clayton's philosophy of emergence, p. 148) with the resulting claim that demons "never exist as authentically personal entities" (p. 220). This last point will be controversial to some Pentecostals (in particular). Since angelic and demonic spirits emerge from the material world, Yong's proposal entails the idea that "God is the only necessary, transcendent, and purely spiritual reality" (p. 208).

Just as Pentecostals continue to discuss what constitutes a specifically "Pentecostal" theology, some readers will no doubt wonder to what extent Yong's pneumatological proposals are specifically "Pentecostal" contributions to the theology/science dialogue, even though Yong does, at times, discuss characteristically Pentecostal concerns (such as speaking in tongues). Nevertheless, while Yong's pneumatological proposals are not always necessarily unique to Pentecostalism (e.g., other traditions speak of miracles as well), one does get the clear sense that his proposals are arising from "the heart of the Pentecostal experience" (p. 28). Hence, Yong has well accomplished his goal of illustrating how Pentecostals can offer valuable contributions to the theology/science dialogue. Hopefully those from other traditions will not neglect this Pentecostal scholarship.

Reviewed by Andrew K. Gabriel, Horizon College and Seminary, Saskatoon, SK S7H 2M9.

AND MAN CREATED GOD: Is God a Human Invention? by Robert Banks. Oxford, UK: Lion, 2011. 160 pages. Paperback; \$13.95. ISBN: 9780745955438.

Listening to or joining in classroom, cocktail, or coffee conversations about the "new atheists" whose books continue to appear on the *New York Times* bestseller list in 2012, one might falsely formulate an impression similar to what the temple guards said of Jesus in John 7:46, "No one ever spoke like this before!"

Perhaps the most academically accomplished new atheist, Daniel C. Dennett, fosters this fantasy in chapter one of his *Breaking the Spell: Religion as a Natural Phenomenon* (Viking, 2006) by implying that scientific, naturalistic,

critical, and multidisciplinary study of religion is unprecedented, or at least nearly so. Does Dennett “protest too much” (*Hamlet*)? Dennett does, as Robert Banks demonstrates in *And Man Created God: Is God a Human Invention?* Contemporary atheists speak in their own particular voices and variations, but attacking, critiquing, or seeking to understand religion and belief in God as totally “man-made” is not novel. As Solomon says, “there is nothing new under the sun” (Eccles. 1:9).

After Banks’s opening chapter surveying the new atheism and its variants, Banks reviews biblical characters along with Greek and Christian philosophers who rationally, spiritually, or emotionally wrestled with God (the very meaning of “Israel”) and/or the religion(s) of their day *because of* rather than in spite of their Jewish, Christian, or other theistic commitments. Banks then surveys later Deist and nonreligious repudiators of religion or God who precede the new atheists by centuries, including Pierre Bayle (1647–1706), David Hume (1711–1776), and Baron D’Holbach (1723–1789).

D’Holbach specifically critiqued religion, not from within as a believer working for reform or expressing doubts or constructively struggling with God, but as a furious denouncer of God’s existence who claimed that believing in God was a gross immorality. D’Holbach and others turned earlier Greek, Jewish, and Christian “rejection of false gods as human creations” on their heads by substituting, in Banks’s words, “a rejection of the very God from whom the original critique [of false gods and religion] was said to have come” (p. 59). This rejection was one of the most striking reversals in intellectual history.

Four prominent “modern” approaches carrying or multiplying torches for hostile and materialist critiques of religion and theistic belief predate the new atheists by one hundred years or more. These include Ludwig Feuerbach’s “God as the Product of Human Wishes,” Karl Marx’s “God as a Substitute for Oppressive Conditions,” Sigmund Freud’s “God as a Projection of Repressed Desires,” and Erich Fromm’s “God as the Symbol of Human Potential.” Banks evaluates these four thinkers in four succinct chapters utilizing primary and secondary sources, deftly distilling their essence and “ambiguous” legacies, with relevant commentary on each theorist’s views of God and humanity.

Banks concludes by inviting “a time for self-examination” (p. 131). For Banks, major critics of religion are too often perceived as mere opponents of belief in God. Even if the argument that God is altogether imaginary is invalid, everyone’s religious beliefs contain some “man-made” elements. Marx, Feuerbach, Freud, Fromm, and new atheists who call attention to and denounce harmful features of or within these elements inadvertently build on the insights of their Christian and rationalist predecessors.

Atheists and other hostile critics may counterintuitively play a prophetic role by exposing questionable characteristics in some beliefs about God. Awareness and contemplation of these historic and contemporary gadflies is crucial not only to a robust education and to science. It can also prompt thoughtful religious believers to reform and refine their beliefs, ethics, and practices,

thereby facilitating avoidance or renunciation of idolatry and other manifestations of immature faith. Banks’s ability to deliver a concise appraisal of the philosophical “giants” on whose shoulders new and other atheists stand is impressive.

As a doctoral candidate writing a dissertation on the new atheists, this reviewer applauds Banks’s agenda and crisp presentation. By interacting with atheists and other critics and taking them seriously where they have substance, religious believers can refine beliefs and practices by utilizing atheist criticisms to filter gold from theological or scientific dross. We may increase our awareness of God’s truth, learn to articulate more clearly, and appreciate our faith afresh through comparison and contrast. Christians and atheists of good will may choose to receive some attempts to persuade each other as productive confrontations, reciprocally probing merits and flaws. Error may illumine truth by contrast, and believers may discover weaknesses in their positions that, when corrected, result in deeper relationships with God through the testing of faith (James 1:2–3).

In another volume also published by Lion UK, Stephen Tomkins in *A Short History of Christianity* (2005, 2006) quotes Cardinal Bonomi: “The best way to beat the heretics is not to deserve their criticisms” (p. 146). God’s providence in allowing deism and atheism to exist may be partly to motivate Christians to stretch and reform.

At the same time, we cannot approve or remain silent when critics malign or incorrectly reduce faith in God to nothing more than a contemptible source of comfort, wish fulfillment, projection, or purely human construction. Banks not only listens to his interlocutors, he answers them perceptively. His book is highly useful for the history of thought, science, philosophy, and apologetics courses, as well as for interested scholars and laypeople. One hopes that Banks will fulfill this reviewer’s wishes for a revised and expanded edition or a comparable sequel tackling Darwin, Nietzsche, and other notables.

Reviewed by Benjamin B. DeVan, Doctoral Candidate in Theology and Religion, University of Durham, Durham DH1 3RS, UK.

MORE THAN MATTER? Is There More to Life Than Molecules? by Keith Ward. Grand Rapids, MI: Eerdmans, 2011. 224 pages. Paperback; \$20.00. ISBN: 9780802866608.

Is there more to life than molecules? Keith Ward, philosopher, theologian, and Anglican priest, provides a highly readable (and often humorous) answer to the guiding question raised by the book’s title. Given the rise and current prevalence of eliminative reductionism and materialism in the philosophy of science in general and the philosophy of mind in particular, Ward’s book provides a welcome counterbalance to this trend, beginning with a review of the traditional approaches to the philosophy of mind and reality and their respective strengths and difficulties. Where Ward arrives is a nuanced defense of idealism, the primacy of the conscious mind as a basis for metaphysics and the objective nature of morality and ethics. Ward’s treatment is not an academic philosophy text in the traditional sense, in that there are portions in

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which more elaboration could obviously have been given on certain points. And some chapters are surprisingly short; Ward makes his points and then quickly moves on. While this may dismay some academics, it also makes this text an ideal introduction to broad issues in the philosophy of mind, a good supplementary text to longer works or anthologies, or as a response to books or essays by reductionist philosophers of mind.

Ward frequently employs the work and person of Gilbert Ryle, one of Ward's prominent philosophical mentors at Oxford University, as a sounding board and point of contrast for the version of idealism presented in the text. Ryle famously rejected grand metaphysical theories in favor of commonsense approaches to issues dealt with by the field of philosophy. As Ward highlights throughout *More Than Matter?*, perhaps one of the most common commonsense elements of human experience is that of subjective internal mental lives, something which Ryle rejected.

At the other end of the philosophical spectrum of Ward's mentorship at Oxford (at least in terms of a philosophy of mind) stood A. J. Ayer, who held to the primacy of private experience (or "sense-data") as a basis for understanding reality. Ward summarizes Ayer's position humorously and succinctly:

The idea of a world of unobserved physical objects is a logical construct, invented for pragmatic reasons — it helps us to find our way around the world if we pretend that it is really there. (p. 108)

Ward seeks a middle way between Ryle's rejection of introspection and Ayer's insistence that our reality—as we experience it—is something completely inferred from sense data. Ward's arguments come close to a classic dualist understanding of mind, which seems almost a necessity when an author even acknowledges the existence of any sort of interior mental life. But what sort of explanation best fits with the data given to us via the mind? Cartesian dualism, which leaves the question of how mind interacts with matter? Epiphenomenalism, which leaves the mind an impotent bystander in a world of the physical? Non-reductive physicalism, in which mind emerges from matter and subsequently influences the functioning of the physical? Ward reviews the alternatives and embraces an admittedly inconclusive defense of a broadly idealist view ("dual-aspect idealism") that places mind and subjective experience at the forefront:

Idealists propose that the human mind provides a better model from which to extrapolate to the cosmos as a whole. That is not because the cosmos looks like a very large human person or because there is some large person hovering just beyond the cosmos. It is because human minds play a creative and constructive role in producing the phenomenal world. They seem to point to a level of reality that is not merely phenomenal or an appearance to consciousness. Human minds generate an idea of reality as mind-like in a way that far transcends human mentality, yet that does include something like consciousness, value, and purpose as essential parts of its nature. (p. 58)

Explanations of this idealist position given by Ward are tentative and delve into the differences between an ab-

solute idealism—one Absolute Mind "which progressively realizes its nature in the history of the cosmos" (p. 58)—and the process philosophy of Alfred North Whitehead and Bertrand Russell in which all events have inner or "mind-like" aspects. For Ward, the solution appears to be the possibility that the human mind and consciousness are the "... development of simpler properties inherent in all material things" (p. 82), essentially a panpsychic view with possible gradations of complexity and experiential quality. As such, elemental aspects of teleology are also present within the basic stuff of which the universe is made. From this idealist perspective, Ward addresses rather pragmatic yet philosophically important ideas, such as volition of the will, morality, and aesthetics.

Ward's philosophy appears to have strong parallels with Eastern thought and religion (given the primacy that these systems often give to mind and consciousness), and he does bring these comparisons into explicit view throughout the text, but only in a speculative and tangential manner. As Ward notes throughout his book, his is a work of philosophy and not theology or religion. As a result of this approach, consideration of the relationship between Christianity and the idealist philosophy that Ward lays out is rather minimalist, touching upon some matters at the end of the text but otherwise remaining agnostic.

After reading Ward's work, I was reminded of a quote from William Temple, Archbishop of Canterbury (d. 1944):

Mind, then, though it appears within the Process at a late stage, discovers throughout the Process the activity of Mind—universally in the form of Truth, commonly in the form of Beauty, sometimes in the form of Goodness. That the Mind is pervasive of Reality is a necessary inference from this method of apprehending the world. If that method is justified, as we have tried to show that it is, the conclusion is inevitable. Mind is the principle of unity in Reality, or at least the fullest expression of that principle known to us." (*Nature, Man, and God* [1934], 219)

This observation, based in philosophy and consistent with an idealist approach to reality, can only take the Christian so far. However, it does provide the Christian with a coherent starting point from which to venture into revealed (in contrast to natural) theology.

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WHERE THE CONFLICT REALLY LIES: Science, Religion, and Naturalism by Alvin Plantinga. New York: Oxford University Press, 2011. xvi + 359 pages. Hardcover; \$27.95. ISBN: 9780199812097.

The conflict referred to in the title is, of course, the alleged war between Christianity and science. The thesis Plantinga defends is that where such conflicts have arisen, they are superficial and relatively easily reconciled. On the other hand, he argues, the conflicts between naturalism and science are deep and cannot be resolved. The book is divided into four major parts: Alleged Conflict (chap. 1–4), Superficial Conflict (5–6), Concord (7–9), and Deep Conflict (10).

The book starts, not surprisingly, with the issue as to whether the theory of biological evolution is incompatible with Christian belief. Plantinga sees no conflict whatever; his own view, as he says later on, is that God can create in any way he chooses. He tackles four thinkers who claim there is such a conflict: Dawkins, Dennett, Draper, and Kitcher. A careful reading of Dawkins reveals, however, that while he claims he will show that evolution is incompatible with belief in God, what he actually argues for is that it is *possible* that all life forms were produced by unguided evolution. And even that shift, as Plantinga demonstrates, ends up being still further watered down to claim merely that unguided evolution is not astronomically impossible. Thus his argument ends up being the patently invalid inference that P is not astronomically impossible, therefore P. “The conclusion to be drawn,” says Plantinga, “... is that Dawkins gives us no reason whatever to think that current biological science is in conflict with Christian belief” (p. 30).

Moreover, on careful inspection, Dennett’s arguments turn out to be no better than Dawkins’s. He too argues that unguided evolution is possible and takes that to show it is true, though he at least adds a second line of argument attempting to show that God does not exist. To accomplish this, he begins with the claim that none of the traditional arguments for God’s existence work. Incredibly, this huge and important claim is not then backed up by a critique of even *one* of the arguments given by current philosophers of religion! Moreover it is conjoined to the (implicit) claim that for belief in God to be justified, it would have to have *scientific* evidence—another huge and important claim which is also left undefended. In place of actually defending these claims, Dennett simply resorts to ridiculing those who believe in God. So Plantinga concludes,

I’m sorry to say this is about as bad as philosophy (well, apart from the blogosphere) gets; Christian charity, perhaps even good manners might require passing silently by the embarrassing spectacle, eyes averted ... Dennett’s ventures into the epistemology of religious belief do not inspire confidence. (p. 45)

Needless to say, neither Dawkins nor Dennett offers a separate justification for the claim that evolution was *unguided*; Plantinga exposes this argument as a metaphysical or religious add-on to evolution. As such, it is “an assumption that in no way enjoys the authority of science.”

Draper, on the other hand, at least mounts an argument. He claims that evolution is evidence that favors the probability of naturalism over theism. Plantinga formulates and analyzes this claim in his usual perceptive manner, acknowledging points that could be in Draper’s favor. But in the end, as he sees it, Draper’s argument comes down to the argument that if all else is evidentially equal, theism is improbable (p. 51). To this Plantinga replies that all else is not equal. For example, would not the existence of intelligent moral beings be more likely given theism than naturalism? Kitcher also claims that there is a conflict between evolution and the kind of theism that believes in a God who “cares for his creatures.” Again Plantinga fails to see any real conflict. As he says, “... God could have created life in all its diversity by way of such a process [evolution], guiding it in the direction in which he wants to see it go ...” The issue, once again, is not evolution *per se* but whether evolution is

guided by God. So it is not surprising that the claim that evolution is unguided morphs into another argument altogether, the traditional problem of evil.

Kitcher argues that the existence of suffering in the world is evidence against the existence of God. Plantinga handles this argument with even-handed fairness, conceding, “Much in the natural world—just as much in the human world—does indeed seem the sort of thing a loving God would hate” (p. 58). But as he has already written about this topic more than once (e.g., *The Nature of Necessity* and *God, Freedom, and Evil*), he has a ready reply. He offers a quick summary of one of his earlier counter-arguments, and then concludes this way:

Not everyone agrees with this theodicy; and perhaps no theodicy we can think of is wholly satisfying. If so, that should not occasion great surprise: our knowledge of God’s options in creating the world is a bit limited. Suppose God does have a good reason for permitting sin and evil, pain and suffering; why think we’d be the first to know what it is? (p. 59)

I have covered these first few thinkers in some detail to convey something of the book’s tone and style, but from here on I must be briefer. Chapters three and four deal with the oft-repeated objection that belief in miracles is incompatible with scientific prediction. In chapter three, Plantinga deals with this supposed conflict from the standpoint of the old (Newtonian) physics, and in chapter four, he deals with it from the standpoint of quantum mechanics. He shows convincingly that miracles do not conflict with either system, and are, in fact, even less of a problem for quantum mechanics than for Newtonian physics. Moreover, he shows that the reason so many Christian theologians as well as naturalist critics have thought there is a conflict is that they have confused physics with determinism. After disposing of this mistake, his main argument in defense of miracles goes this way: (1) Any law of physics is a necessary truth *only in a closed system*; (2) As soon as God acts in the world the locus at which he acts is not a closed system; so, (3) it is *impossible* that a miracle violate a physical law.

Chapter five begins the section on superficial conflicts, conflicts between Christianity and science which are genuine but resolvable. The topics of the chapter are evolutionary psychology and scripture scholarship. It deals first with the attempts of evolutionary psychology to explain ethics and/or religion. A number of such theories are reviewed and Plantinga’s general conclusion about them is that they all seem to assume that simply giving a plausible natural account for the origin of religion thereby discredits its truth. Against this assumption he points out that

No one thinks describing the mechanisms involved in perception impugns the truth of perceptual beliefs; why should one think things are different with religion? ... Finding a natural origin for religion in no way discredits it. (p. 140)

The same holds for theories about the origin of morality, such as those of Wilson and Ruse. They argue that the phenomenon of ethics is adaptive at the group level and has become ubiquitous by way of selection. But just how is that incompatible with Christian belief? In each case, the theories covered show the same pattern: it is not the scientific theory itself that is incompatible with Christian

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belief, but the theory plus an assumption that evolution is unguided, or that any capacity which evolves in the way they propose delivers only false beliefs, or something of the sort. So, once again, it is not the science that is in conflict but the science plus some question-begging add-on which is asserted but not justified.

Much of contemporary biblical scholarship, on the other hand, exhibits a conflict which is genuine. Assumptions about history derived from Ernst Troeltsch have, indeed, led a number of scholars to take a position that—in the words of Bultmann—requires “... the presupposition that history is a unity in the sense of a closed continuum of effects ... [which] cannot be rent by the interference of supernatural, transcendent powers.” Other thinkers base their method on Duhem’s proposal to accept from scripture as factual only whatever convinces everyone in the relevant community. Either of these assumptions does, indeed, rule out many beliefs of creedal Christianity. The question, then, is whether such genuine conflicts present the Christian with “defeaters” of those beliefs. Hence chapter six is an extended introduction into the epistemology of what it takes to defeat a belief. Happily, this is written at a level that does not require the reader to be a logician or a philosopher. The upshot, as you would expect, is that methodological naturalism (in both its strong and weak senses) can indeed produce conflicts with traditional Christianity, but not defeaters. This is especially so if the Christian belief at stake is taken as a *basic* belief, which is a belief not justified by other beliefs but one that has its own “intrinsic warrant.” The fact that its rejection can be derived from scholarly work that assumed a different “evidence base” from the Christian evidence base is no defeater for such a belief.

Chapters seven and eight set out the deep concord that exists between traditional Christianity and science. They begin with a discussion of the “fine tuning” of the universe, which makes possible life as we know it. This is examined closely to see if it can support an argument for theism in the face of the “many universes” counter-argument. The conclusion is that “... the FTA [fine tuning argument] offers some slight support for theism ... but only mild support” (p. 224). This segues into a treatment of arguments from design, which focuses upon Behe and his critics. The analysis of this controversy is intense, clear, and compelling. In the end Plantinga sees design arguments to fail as proofs of a designer, but then distinguishes design *argument* from design *discourse*. The difference is that discourse attempts to point to something rather than prove it. But even granted the legitimacy of this distinction, he concludes that it does not offer much. He states that “... we really can’t tell what sort of support, if any, design discourses offer theism without knowing whether theism is true” (p. 264).

Chapter nine puts on display the deep concord between Christian belief and science. It rehearses the history of the rise of science under the influence of such Christian beliefs as the reliability of human reason (because in the image of God), the regularity of nature (owing to God’s providence), that nature is law-governed (God as law-giver to creation), and so on. The treatment here is informative and well balanced, full of reminders about how the relations between Christianity and the rise of science really were, rather than the tiresome fiction that they were at war.

The final chapter then turns to the deep discord between science and naturalism, starting with the way the naturalist version of evolution undercuts itself.

As Plantinga makes clear at the outset, he is not now trying to prove naturalism false or theism true. The argument is simply that

... naturalism is in conflict with evolution ... The conflict is not that they can’t both be true (the conflict is not that there is a contradiction between them); it is rather than one can’t sensibly accept them both. (p. 310)

The conflict, he says, is between naturalism—understood as materialism—and unguided evolution. (Since it seems to me that Plato and Aristotle were both naturalists but not materialists, I am uncomfortable with the assumption that naturalism and materialism are largely the same, but perhaps that is just a verbal quibble.) The argument is, in a nutshell, that if our cognitive faculties have randomly evolved, guided only by survival constraints, there is then no reason to suppose they deliver truth. This argument is not new, and Plantinga cites a number of thinkers who have put it forward in various forms. The claim that the probability that our reasoning capabilities are such as to deliver truth (rather than merely survival) is low is based on the assumption that they are the products of a random evolutionary process. This is defended with respect to both reductive and nonreductive materialism with the same results:

In either case, the underlying neurology is adaptive, and determines belief content. But in either case it doesn’t matter to the adaptiveness of the behavior (or of the neurology that causes the behavior) whether the content determined by that neurology is true. (p. 339)

Plantinga considers a number of objections to this argument and offers compelling rejoinders to all of them. He concludes with this: “Given that naturalism is at least a quasi-religion, there is indeed a science/religion conflict, all right, but it is not between science and theistic religion: it is between science and naturalism. That’s where the conflict really lies.”

If you have not read Plantinga before, this book would be an excellent place to start. You will find it a model of clarity, written in an engaging style that also includes good humor. As usual, Plantinga is a master of his material, and a first-rate logician. No one interested in the relation of science and religion should fail to read this book; no one who reads it could fail to profit by doing so.

All that said, there is still something about the book that bothered me. At a number of points, Plantinga spends a good bit of effort on whether theism is probable: he counter-punches Dawkins’s claim that it is not with an analysis of probability; he parries Draper by concluding that theism is at least as probable as naturalism; and he considers the “antecedent probability of theism” in his section on the fine tuning of the cosmos. My problem with this is not that Plantinga is wrong about how to handle probability, but that, for a Christian, belief in God is not a matter of probability at all. Let me illustrate this point with the following true story. Last fall my eldest son was in Vienna on business and decided to use a day off to look

for a little gift to bring home to his boys, who are seven and nine years old. In a confectioner's shop, he found the most charming little chocolate mice, and bought them. He carefully nursed them all the way home, hand-carrying them so they wouldn't break, and when he finally came through the front door he called out, "Boys I have a treat for you!" But the boys answered, "Wait. Before you show us what you've brought us, we want to show you the surprise we made for you." They opened the refrigerator door and proudly drew out a tray of chocolate mice.

I have no idea what the probability of that is, but I do know that whatever it is, it has nothing whatever to do with the truth of the belief that they were all confronting chocolate mice. No doubt Plantinga would agree with this point. There are places in the book where he speaks of deeper grounds on which Christians believe in God. He refers to humans having a *sensus divinitatis*, and to (at least some) Christian beliefs being basic and thus self-warranted. But at no place does the book actually come right out and say that these deeper sources all involve *the experience of God*.

By contrast, Calvin does do that. Concerning how we know the truth about God, he says,

As to the question, How shall we be persuaded that [scripture] came from God ... it is just the same as if we were asked, How shall we learn to distinguish light from darkness, white from black, sweet from bitter? Scripture bears on the face of it as clear evidence of its truth as white and black do of their color, sweet and bitter of their taste ... (Inst. 1.7.2)

Such, then, is a conviction that asks not for reasons ... knowledge in which the mind rests more securely than any reasons ... I say nothing more than what every believer *experiences in himself* though my words fall far short of the reality. (Inst. 1.7.5, emphasis mine)

My question, then, is this: why should we engage the issue of the probability of God's existence at all? Doing so seems to legitimate that question when in fact our belief is one we hold because its truth is acquired by seeing it "with the eyes of your mind" (Eph. 1:18). This, because it is hearing God speak, is one way of experiencing God.

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RELIGION & BIBLICAL STUDIES

HIDDEN TREASURES IN THE BOOK OF JOB: How the Oldest Book in the Bible Answers Today's Scientific Questions by Hugh Ross. Grand Rapids, MI: Baker Books, 2011. 240 pages. Hardcover; \$17.99. ISBN: 9780801072109.

Hugh Ross is well known in Christian circles for his concordist views on the Bible and science. He rejects the idea that science and the Bible address different concerns, a position recently articulated by the eminent philosopher Alvin Plantinga (*Where the Conflict Really Lies: Science, Religion, and Naturalism* [Oxford University Press, 2011], see pp. 198–201 for a review of this book). Ross's position is that the Bible anticipates modern scientific developments.

For instance, though the original audience would not have realized it, when Job proclaims that God "alone spread out the heavens" (Job 9:8), the biblical author is actually describing the expanding universe of the Big Bang theory.

Ross's most recent contribution integrates the book of Job fully into the discussion. The title, *Hidden Treasures in the Book of Job*, resonates with his concordist viewpoint. No one up to this point has understood that the book of Job articulates ideas that modern science has uncovered. Ross begins with the startling claim that "the book of Job apparently anticipated several stunning scientific discoveries of the past few decades" (p. 15). He asserts that the book of Job is the oldest book in the Bible, predating Genesis and therefore the Genesis account of creation. Thus, he believes that some of the questions we have about the Genesis account are resolved if we realize that Job serves as a kind of preamble to Genesis.

What are some of these stunning scientific discoveries anticipated in the book of Job? Space will only allow one example out of many. One of his main points concerns the category of "soulish" (*nephesh*) animals mentioned in Genesis 1. He believes that Genesis 1 specifies the distinct origin of three different classes of animals, contra evolutionary theory that sees these differences as a matter of "degree only and not kind" (p. 19). These three classes are "purely physical life, such as plants and insects; life that is both physical and soulish, including birds, mammals, and a few species of reptiles; and life that is physical, soulish, and spiritual, namely—and only—human life" (pp. 19–20).

He believes that Job, the person, is aware of this distinction, and he devotes most discussion to the category of "soulish" creatures because he thinks that Job provides a "top ten list of animals that played essential roles both in the launch of civilization and in sustaining human well-being today" (p. 20). In other words, the book of Job, written before Genesis, helps us understand the nature of soulish animals and to see that, rather than sharing a common descent, humans and animals have a separate origin and exhibit a difference of kind. These animals are the lion (Job 38:39–40), the raven (38:41), the goat (39:1–4), the deer (39:1–4), the donkey (39:5–8), the wild ox (39:9–12), the ostrich (39:13–18), the horse (39:19–25), and the hawk and the eagle (39:26–30). He argues that these animals are nothing like humans, lacking humanity's spiritual capacity, but they were created to help humans develop civilization and cater to "humanity's physical and emotional well-being" (p. 165).

From the perspective of an Old Testament scholar, Ross's treatment of Job is deeply flawed. In the first place, no contemporary Job scholar of whom I am aware believes that the book of Job is the oldest biblical book (indeed, the view that it was the oldest book is only one of many ancient views of the book), so to use it as a prism through which to read Genesis is very problematic. His specific interpretation of the book is also problematic. Errors of interpretation abound in this book, but I will focus only on his understanding of Job 38–39 as presented above.

Job 38 and 39 contain God's first speech, in which he places Job in his proper place. Job's response to his suffering was to seek out God in order to demand that God

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justify what he has done to him. Job knows he is “innocent” and that his pain is undeserved, so he wants to call God to account. While getting the desired audience with God, the meeting does not go as he expected. Rather than challenging God’s justice (Job 31:35–37; cf. 40:8–9), God upbraids Job by demonstrating his lack of wisdom. He does so by subjecting Job to a series of questions for which Job has no answers. The purpose of these questions is to expose Job’s ignorance so that he eventually submits to God’s greater wisdom in the face of his suffering (Job 42:1–6).

Indeed, some of God’s questions concern his creation of the world. In particular, Job 38:4–11 asks Job if he was around to observe and know how the world was put together. Those with a knowledge of ancient Near Eastern creation accounts note that this highly literary, figurative and partial description of creation reflects other creation myths of the time. Ross, surprisingly, devotes little attention to this passage, preferring to devote more space to the insights provided by the list of animals in Job 38:39–39:40.

Here is his first mistake. Ross thinks that God is speaking about the creation all the way through these chapters, asserting that

the last few verses zoom in on God’s creative activity during creation days five and six. On these days God created some life-forms referred to in Hebrew as *nephesh* and which Bible scholars call “soulful animals.” (p. 101)

But God is not speaking about the days of creation; he is simply bombarding Job with questions that undermine his knowledge of both how the creation was put together and how it functions in the present. In order to accomplish the latter, he queries him about his knowledge of these ten animals. The revelation connected to the description of these ten animals is not that they are *nephesh* or soulful creatures (contrary to Ross, I know of no biblical scholar that would use this term in this way) unlike others in their ability to relate to and support humans and their civilization as Ross argues. Quite the opposite. God queries Job about them because they are wild animals, known or barely known by humans like him.

Part of the problem is that Ross partly misrepresents the animals listed. He is right about the lion, deer, wild ox, ostrich, hawk, and eagle, but these are all obviously undomesticated animals that do not have any special relationship to humans. God does mention the goat, but it is specifically the undomesticated mountain goat. The donkey is really the “wild onager” or “Arabian onager,” again a wild creature. The horse is no normal horse, but the barely domesticated war horse. Again, the point is just the opposite of Ross’s point that these are creatures that God created to relate to humans in some special way. All we have to do is to note the question God poses to Job to realize this: “Will the ox consent to being tamed? Will it spend the night in your stall? Can you hitch a wild ox to a plow? Will it plow a field for you?” (Job 39:9–10). The answer is no.

I am not a scientist and so it would be wrong for me to question Ross on the grounds of his specialty. I am a biblical scholar who just completed a commentary based on the Hebrew text of Job, and in the light of my research

and knowledge of Job scholarship, I find Ross’s treatment mystifying and misleading. His footnotes indicate that he consulted two scholarly books on Job. While this amount of research is hardly adequate for a layperson attempting to use Job in the manner that Ross does, I find absolutely no indication that even these works have influenced his understanding of the book. As a result, I have to warn others who are not students of the Bible that Ross’s interpretation and use of Job is deeply and extensively flawed. Others will have to judge his interaction with science.

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RELIGION & SCIENCE

SCIENCE AND RELIGION AROUND THE WORLD

by John Hedley Brooke and Ronald L. Numbers, eds. New York: Oxford University Press, 2011. 336 pages. Paperback; \$29.95. ISBN: 9780195328202.

“There is no such thing as the relationship between science and religion, and this is a book about it.” This quote (p. 278) from David Livingstone is from “Which Science? Whose Religion?,” the concluding and summary chapter of *Science and Religion around the World*. The spin on Alasdair MacIntyre’s famous title provides a clue that this book offers no “monochrome portrayals” about science or religion. According to Livingstone, the relationship between the two is not “inherently pugilistic or irenic” (p. 288), though he admits that “the idea of in-exorable conflict is proving exceptionally hard to eradicate” (p. 279).

Livingstone’s approach matches the perspective in the editorial introduction by John Hedley Brooke and Ronald Numbers:

Science-religion dialogues have taken many forms. They have been conducted very differently in different times and places. There is no unique solution to the problem of how best to describe the place of the sciences in, or their bearings on, the world’s religions. (p. 19)

Given this, it is no surprise that the other authors in the volume avoid univocal judgment for or against religion, preferring to illustrate the many complexities involved in negotiating the science-religion narrative worldwide, past and present, in the varied peculiarities of the world’s religions.

As is often not the case on science and religion, the volume moves beyond exclusive focus on the Christian tradition. This means that Galileo and Darwin get attention but not unduly so. Darwin gets more focus for two reasons. First, in spite of the overemphasis on Galileo in skeptical attacks on religion, Galileo remained a professing Christian and Copernican views triumphed reasonably quickly, even in Roman Catholic circles. On this, see Maurice A. Finocchiaro’s magnificent work *Retrying Galileo 1633–1992* (Berkeley, CA: University of California Press, 2005). Second, Darwin’s naturalistic theories created panic beyond Christian tradition. Various Jewish,

Muslim, Hindu, and even Buddhist leaders also objected to the theory of evolution. As a case in point, Orthodox Jewish attacks on Nosson Slifkin (the “zoo rabbi”) are noted. Buddhists are not concerned about any atheistic impulse in Darwinism, but its materialist, reductionist undertone is alarming to some. African religious traditions picked up negativity only as colonial missionaries brought their concerns about evolution to the continent.

Ten of the twelve chapters of the book cover specific religions. Judaism, Christianity, and Islam each get two chapters, while early Chinese religions, Indic religions, Buddhism, and African religions each get an individual chapter. Before the concluding chapter, Bernard Lightman (York University) provides an impressive history of unbelief, contrasting moderate and radical outlooks in the path from Unitarianism to the New Atheism. He shows that Voltaire was not as aggressive as Diderot in French Enlightenment circles. Of greater importance, Lightman makes the case that T. H. Huxley’s agnosticism struck the right balance after Darwin to create a climate of opinion that allowed atheism to grow and flourish. It is easy to forget how atheism could have no voice in public opinion for centuries.

The detailed information provided by the authors is sometimes daunting. This is to be expected. After all, the volume is addressing not only diverse religions, with their distinct histories, leaders, ideas, and vocabularies, but readers are also introduced to an array of topics, figures, theories, and specialties in science. So, there is Complete Perfection Daoism, advaitist Hinduism, Calvinist theology, Tibetan Buddhism, central African shrine ritual, and Talmudic Judaism, alongside details about optics, astronomy, iron melting, algebra, crop purification, natural selection, and the uncertainty principle. Despite necessary complexity and detail, I wish that chapter 7, “Early Chinese Religions,” had a brief overview on the major shifts in Chinese dynasties. As well, the volume would be improved with more attention to the broad outlines of African religions, similar to what Donald Lopez does on Buddhism. However, the book more than proves that the relationship of science and religion is complex. How could it be otherwise?

Overall, the authors of *Science and Religion around the World* view the many religions in a sympathetic light. They show very convincingly that each religious tradition includes facets that are open to science, lead to good science, and/or involve the real practice of a scientific discipline as an essential part of the religion. On the latter, the process of iron smelting near Lake Victoria “was one of great technical complexity, since it involved combining ore with charcoal under conditions that carefully controlled the flow of oxygen in order to reduce the ore by chemical action” (p. 232). Of course, the African tribal leaders were involved in this particular scientific procedure for religious reasons, just as Muslims learned astronomy for its utility in predicting the lunar cycles that impacted ritual life, or Jewish leaders learned to categorize plants and animals in order to obey Torah and Talmudic purity laws.

The volume gives adequate attention to the dark side of the religions vis-à-vis science. In the chapter on Indic religions, for example, there are some blunt quotes about

Hinduism’s antipathy to science. P. C. Ray, a noted Indian scientist and Hindu, stated that India had been “rendered morally unfit for the birth of a Boyle, a Descartes, or a Newton and her very name was all but expunged from the map of the scientific world” (p. 203). Steven Weinberg is mentioned several times as a Jewish voice opposed to religion. For him “religion is an insult to human dignity” (p. 60). Weinberg would like the conclusion of Lightman’s chapter:

Those who maintain that traditional religious beliefs can be put in alignment with the key theories of contemporary science have found that the burden of proof has shifted and it is up to them to persuade the public that current science has not, as Dawkins maintains, rendered God a mere delusion. (p. 273)

The burden of proof has shifted in favor of unbelief, especially in the scientific community. However, the extent of religious commitment is amazing worldwide and even in the West. This means that the tensions between religion and science will continue. Of course, the conflict between religion and science is mild when contrasted with the violent struggles between and within religions. Further, this volume does not begin to address whether any, some, or all of the religions are true. That has to be left for another volume. In any case, there is not one monolithic view about the proper relationship between religion and science, and religious and scientific elites will continue to vie for their space and voice, even as moderates argue for avoiding warfare metaphors as unnecessary and historically inaccurate. The present volume makes a strong case for the value of this mediating stance.

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THE LANGUAGE OF SCIENCE AND FAITH: Straight Answers to Genuine Questions by Karl W. Giberson and Francis S. Collins. Downers Grove, IL: InterVarsity Press, 2011. 251 pages. Hardcover; \$20.00. ISBN: 9780830838295.

Before reading *The Language of Science and Faith: Straight Answers to Genuine Questions*, one needs to appreciate the difficult task Karl Giberson took up in putting this book together. The raw material for the book originated from a set of “Frequently Asked Questions” Francis Collins responded to after publishing his *Language of God: A Scientist Presents Evidence for Belief*. These FAQs eventually became the core of the BioLogos website. When Collins was appointed head of the National Institutes of Health, Giberson inherited the unenviable task of translating these “FAQs” into a coherent, readable narrative. Giberson extends Collins’s project of creating an acceptable public space for evangelicals who are also evolutionary creationists by arguing for the essential harmony between faith and science. Although the harmony pronounced may be a bit premature, the book seeks to clear roadblocks preventing the smooth traffic of ideas, and even praise, between the language of science and the language of faith.

The authors presume that the faith/science controversy results largely from a few loud atheists who misconstrue “science” as inherently “antireligious” and a few loud

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Christians who misconstrue “faith” as “antiscience.” This allows the authors to perhaps too quickly proclaim the good news that their book will disprove both groups (pp. 17–18) such that “the negative baggage of evolution can be tossed overboard without harm to the faith” (p. 28).

The book opens and closes with worship, flowing smoothly between the languages of faith and science. Beginning with Gen. 1:1, Psalms, and hymns, the authors proclaim the majesty and beauty of God. Then the text moves from more traditional church praise into scientific revelations of God’s glory uncovering “the elegant and hidden foundations of our world” (p. 16). The authors claim that

the richest appreciation of creation requires that we ponder how the wonder encountered on the surface of the world relates to the beauty in the hidden patterns of nature, how the laws of physics illuminate the beauty of a sunset, ... how genetics opens up the mysteries of life. (p. 17)

While one wonders if knowledge of genetics rather than knowledge of the resurrection is “required” for the richest appreciation of creation, the two knowledges or languages, if rightly ordered, clearly have tremendous potential to increase our delight in God.

The blending of science and faith concludes in chapter nine with an extended doxology, which attempts to “recast the scientific creation story to open up its grandeur” (p. 216). The ending returns to the beginning when “God created the heavens and the earth” and moves into an exposition of the interaction between quarks, leptons, and the four elemental forces (p. 216). The authors praise the ordering *Logos* of John 1 for the astonishing development of these particles and forces, from simple elements, stars, planets, increasingly complex molecules, and finally—life. At the crown of creation and at the pinnacle of life is humanity in praise of its creator, putting into words for all heaven and earth to hear, “God saw that it was good” (p. 221).

Between opening and closing worship, the authors deal with issues of evolution and the age of the earth in the first two chapters. This opens up philosophical and theological questions, engaged in the following six chapters. Here the authors unpack the “BioLogos” perspective that *life* (Bio) evolves by the *ordering wisdom of God* (Logos). And this ordering wisdom, when uncovered by science, leads to praise.

Chapter one asks what many evangelicals feel to be *the* central question in the faith and science debate, namely, “Do I Have to Believe in Evolution?” The authors suggest that when the majority of the scientific establishment speaks, Christians ought to at least give it an honest hearing, even if they are not required to believe what they hear (p. 29). On that hearing, the authors believe that evolution, rightly defined and stripped of its materialist metaphysics, is undeniable. Presenting their scientific case, they locate the center of the controversy on a dichotomy between macro- and microevolution (p. 45). The authors argue that this distinction, held so vociferously by antievolutionists, simply breaks down over the eons as microevolutionary changes eventually elide into macroevolutionary changes and even new species (p. 45). Add to

this the massive supporting weight of DNA evidence, and the “responsible” thinker must recognize that evolution is as certain as a heliocentric universe (p. 49).

Since chapter one presumes an ancient earth in order to overcome the dichotomy between micro- and macroevolution, chapter two takes up the question “Can We Really Know the Earth Is Billions of Years Old?” As the authors remind the reader, “A mountain of scientific data supports the idea that the earth is around 4.5 billion years old” (p. 53). As the authors display this data, they ask how it is that so many evangelical Christians refuse to believe it. Giberson and Collins suggest, “Young earth creationists often appear to be reading an anti-evolutionary agenda into the Bible and forcing it to fit assumptions they bring to the text” (p. 54).

In an effort to dislodge the young earth creationists’ (YEC) antievolutionary agenda, the authors make their case against the YEC hermeneutic on two grounds. The first is based on their understanding of historical and contemporary biblical scholarship, which they employ to deconstruct the antievolutionary agenda reading of the biblical text (p. 69). The second is based on the authors’ confession that

God’s revelation in nature, studied by science, should agree with God’s revelation in Scripture, studied by theology. Since revelation from science is so crystal clear about the age of the earth, we believe we should think twice before embracing an approach to the Bible that contradicts this revelation. (p. 70)

Aware that they have opened a serious can of worms, Giberson and Collins now engage a different set of questions. What exactly is the relationship between science and religion? If God’s two revelations cannot be at odds, how are they to be reconciled? What can we say and not say about God? Why is Darwin’s theory so controversial? And finally, what should we believe about evolution and human beings? Can humans be both specially created in the image of God and simultaneously share a common ancestry with all other living organisms on Earth?

There is much to be commended in these chapters, such as the rejection of natural theology and Paley’s proofs (pp. 125–6). And one simply cannot overstate the significance of the authors’ work to relate scientific and scriptural truth through the incarnation of Jesus, who enters into the natural order without violating it (p. 115). It is at this point that the authors depart from the deistic, materialistic metaphysics so troublingly ubiquitous in faith and science debates, embracing instead the exciting Christological conception of creation that provides a confessional grounding capable of adequately holding faith and science together. This is a hopeful sign, a sign that if followed, could open exciting possibilities for BioLogos. (For more on this exciting possibility, see Mark Noll’s *Jesus Christ and the Life of the Mind*, particularly chapter six).

Despite these significant high points, the authors often fail to discern the theological significance behind the questions they are seeking to answer. The bottom line is that current mainstream science does, in fact, raise very serious theological questions that the church, and not merely Collins and Giberson, must wrestle through. Furthermore, the presumption that entrenched Christian

resistance to evolutionary creationism can be reduced to a few loud Christian extremists who misconstrue “faith” as “antiscience” runs the risk of discounting the unique gifts that Christians who do not believe in evolution might still have to offer their brothers and sisters in Christ.

This is not to say the authors ought to defer to the unhelpful extremist rhetoric pronouncing mainstream science and faith to be radically at odds. Yet the authors themselves over-steer into rhetoric of their own when they presume to occupy an easy and harmonious middle ground between the faith and science. In *Science and Religion: Some Historical Perspectives*, John Hedley Brooke suggests that the debate is *not* primarily between faith and science, but rather between *those proclaiming eternal warfare between faith and science* and *those proclaiming complete harmony*. Either posture drastically oversimplifies the actual historical reality that the relationship and boundaries between faith and science are constantly in flux, always defining and redefining themselves and each other in the light of new historical experience and new scientific discoveries.

If the language of science and the language of faith are indeed always in flux, then it will require discernment by experts in both languages, guided by the Holy Spirit of truth and the sense of the faithful, to incorporate into the faith new historical experience and new scientific discoveries in ways that build up love of God and love of neighbor. In other words, what is required for BioLogos to evolve is not only more straight answers to genuine questions but also a deeper receptivity to questions which science might not be able to answer—even questions that come from young earth creationists. The authors are obviously committed Christians; this means they are also committed to the belief that every member of the body is necessary to the church. And this means all members of the body have something to contribute to the faith, even if one believes their science to be inadequate. What might that be?

Reviewed by Michael Gulker, The Colossian Forum, Grand Rapids, MI 49512.

RELIGION AND SCIENCE IN CONTEXT: A Guide to the Debates by Willem B. Drees. New York: Routledge, 2010. vii + 168 pages, bibliography, index. Paperback; \$38.95. ISBN: 9780415556170.

If you are absolutely clear about the respective domains of religion and science or are expecting to find a discussion of their true relationship, this book is not for you. But, rather, if you wish to gain more insight into the complexity of their relationship and the contexts that influence and determine the course of the contemporary debates that are afoot in both Anglo-Saxon as well as European continental forums, one can learn a great deal. In a single word, this book is about *contexts*, the contexts that are often overlooked or downplayed by the interests of the discussants.

This guide is written by Willem Drees, professor of philosophy of religion and ethics and vice dean of the Faculty of Humanities, Leiden University in the Nether-

lands, the editor of *Zygon: Journal of Religion and Science*, and grandson of a popular post-WWII Dutch Prime Minister, Willem Drees (1948–1958). The author was trained in theoretical physics and earned doctorates in theology and philosophy. The book has seven chapters and an illuminating epilogue. In one sense, this book surveys the terrain, sketching a picture as it were, by posing penetrating questions and highlighting perceived strengths and weaknesses of various stances. In another sense, the book quietly advances a position favored by the author, namely religious naturalism or serious agnosticism. Drees muses: “Am I a religious naturalist or a naturalistic theist? I don’t know, and I don’t consider this a problem. Labels constrain” (p. 110). Whatever Drees considers himself to be, he does not want to be accused of being a “lazy agnostic.” He provides a number of arguments for naturalism, but his stance is always an open-ended one, well reasoned, but secure in its position of privileging science as being the best form of knowledge about the world.

The first chapter, “‘Religion and Science’ in multiple contexts,” (note the single apostrophes in the title, alluding to the different stances taken in religion/science discussions) serves as an introduction to subsequent chapters. Drees emphasizes the contextual setting of many of the debates and the lack of progress that has been made in many of the discussions. He argues that this is due to several factors: “(a) contexts, (b) purposes, (c) criteria and (d) views of what religion might be” (a–d are the subjects of the first four chapters). The last three chapters “consider three major domains of ‘religion and science’: (e) mystery in a world made intelligible by science, (f) morality in a world of facts and (g) meaning and identity in a world of matter” (p. 2). For Drees, scientific understanding does not answer, but leaves open, certain ultimate questions. This fact allows for a range of possible responses: holding belief in a creator, promoting religious naturalism, or becoming an informed (and serious) agnostic.

In short, if one wants to gain an excellent introduction to the broad range of the debates surrounding the relationship of religion and science and get beyond a certain Anglo-Saxon parochialism, read this book. This guide is challenging, both in the penetrating questions it asks readers about the regnant assessments of the relation of science and religion, and in its serious desire to advance the ongoing, and seemingly never ending, discussion of this topic.

Reviewed by Arie Leegwater, Calvin College, Grand Rapids, MI 49546.

SCIENCE AND RELIGION IN QUEST OF TRUTH by John Polkinghorne. New Haven, CT: Yale University Press, 2011. 143 pages. Hardcover; \$26.00. ISBN: 9780300174786.

This compact book by John Polkinghorne, accomplished particle physicist turned Anglican priest, summarizes his views on the science-religion interaction in an accessible way. Polkinghorne draws on the philosophy of science to compare and contrast theology with science. Theology and science are both truth-seeking disciplines and both make some progress, but science tends to make progress

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quite reliably and to achieve consensus, whereas theology sometimes progresses and exhibits no obvious trend toward consensus (especially in view of other religions). Theology also calls one to obedience.

Polkinghorne's informal "bottom-up" epistemology aims to be based on evidence. He rejects "the claims of fideism to have access to indubitable knowledge of the divine, mysteriously conveyed in the form of infallible propositions that are endowed with unquestionable authority and immune from challenge or critique" (p. 18). Scripture is a *record of revelation* (not revelation per se). As in Latitudinarian Anglican thought, such as Locke on the "reasonableness" of (truncated) Christianity and the rejection of "enthusiasm," Polkinghorne's view implicitly gives little epistemological role to the Holy Spirit, in contrast with Calvin, Plantinga's Reformed epistemology, and perhaps the Johannine gospel and epistles.

Polkinghorne emphasizes freedom, not only for persons, but even for the physical world ("free process"). The longstanding difficulties in making sense of (libertarian) free will are not discussed. He adopts "open" theology and a temporal God, thus achieving logical clarity about God's knowledge, while not wrestling with the relevant biblical material. He has addressed the tension between a temporal God and relativistic physics elsewhere.

Polkinghorne aims to motivate theistic belief in general and Christian belief in particular. To defend theism, he discusses the unreasonable effectiveness of mathematics in physics (mentioning Eugene Wigner) as well as cosmic fine tuning. The multiverse solves only a single problem, whereas God (who could employ a multiverse) answers many questions at once. (Polkinghorne has little to say about biological intelligent design, except perhaps implicitly.) He provides a brief defense, partly from the Gospels as historical documents, of the resurrection of Christ, his deity, and the Trinity.

The book successfully introduces the reader to the contemporary science and religion discussion as viewed from the perspective of a distinguished senior participant with a recognizably Christian view. Unfortunately, it also exhibits one of the discussion's key weaknesses, especially on account of Polkinghorne's selective robust supernatural claims, namely, an inadequate inductive logic.

Scientific inductive inference depends on the uniformity of nature, whereas many key events portrayed in the scriptures are purported deviations from uniformity due to special divine action. The question arises whether and how one can have a principled basis for rationally accepting some exceptions to uniformity, while rejecting others (especially from the same, overlapping, or logically dependent sources), and whether such a basis would be objective or person-relative (as in subjective Bayesianism). Polkinghorne judges full-blown traditional orthodoxy today *objectively* irrational for requiring so many exceptions to the uniformity of nature to uphold the inerrancy and perspicuity of all of scripture (especially including early Genesis) in the face of modern science (historical geology, evolutionary biology, cosmology, etc.). Such fundamentalism is "perverse" (as is its naturalistic mirror image, p. 20). But Polkinghorne himself makes an exception for the resurrection of Christ.

One can see the appeal of such a theology, which preserves a supernatural core relating positively to evidence but shaves off awkward features of traditional Christianity—not just the creation week, but also aspects of the doctrine of hell, divine omniscience (as including the future), sovereignty in forms strong enough to compete with human free will, and parts of the doctrine of scripture deemed to require rationalistic revision. But why draw the line exactly there? If some biblical miracles are incredible, why believe any of them? If some are credible, why not more, or even all of them? Why accept scriptural teaching on some specific heavenly and earthly matters, while feeling free to revise others? Are the answers to such questions objective or subjective? More justification for specific picking and choosing and the rational limits thereon would be helpful.

Polkinghorne deploys a familiar slogan that science addresses "How?" questions (apparently about what happened and when), whereas theology addresses "Why?" questions. Theology should welcome all that science offers, he says. But his theology belies the slogan regarding the resurrection of Christ, because what really happened to Christ's body is learned from the Gospels (not from medical science), and the answer is resurrection (not decay). Likewise, the eschatological transformation of the whole creation, overcoming the tendency toward degeneration, is contrary to "How?" predictions of "decay and futility" from physics. Yet Polkinghorne urges that all should listen when science speaks about the cosmic and terrestrial past. On what principled basis does he stand exactly there, between the less or nonsupernatural views of a number of other scholars in the contemporary science and religion discussion (such as Peacocke or Drees) and a more traditional position? The "Why?" not "How?" slogan also stands in tension with the basic Old Testament content about Israel's occupying the promised land (or not), which is chock-full of localized counter-inductive "How?" claims contrary to agricultural and military sciences: for Israel or Judah, worshiping other gods or idols, oppressing the fatherless, and making foreign military alliances routinely are said to cause crop failure or military defeat, whereas trust in and obedience to the covenant God usually bring military victory even over superior armies. Should theology welcome all that science offers here also, the Old Testament would be shredded, a view that one can hold (one thinks of Langdon Gilkey's 1960s reflections on the travail of biblical language about divine action), but which Polkinghorne seems not to intend.

What is needed for the science-religion interaction is a systematic exploration of the justification of inductive inference from Hume's skepticism—a notorious trouble spot in the philosophy of science—and the justification (if any) of exceptions to induction. There is some interesting literature on such subjects from the 1930s onward in the philosophy of science, especially involving Hans Reichenbach and Wes Salmon. Perhaps the science and religion discussion can stimulate such work further by providing genuine (contemporary or historical) rather than artificial examples.

Reviewed by J. Brian Pitts, Research Assistant Professor of Physics and concurrent Research Assistant Professor of Philosophy, University of Notre Dame, Notre Dame, IN 46556.

COGNITIVE SCIENCE, RELIGION, AND THEOLOGY: From Human Minds to Divine Minds by Justin L. Barrett. West Conshohocken, PA: Templeton Press, 2011. 234 pages. Paperback; \$19.95. ISBN: 9781599473819.

Anyone unfamiliar with how cognitive science can elucidate contemporary topics within religion and theology should read this book. The book originates from the Science and Religion series supported by the Templeton Foundation. The foundation commissioned a stellar, seasoned cognitive scientist to write a brief book that would identify areas of potentially fruitful dialogue between cognitive science and religion. Justin Barrett, currently the Thrive Chair and Professor of Psychology at Fuller Theological Seminary, has written a solid book exploring questions concerning the role that the mind plays in human behavior and experience, with a significant emphasis on religious experiences. Readers familiar with the Templeton Science and Religion series will be happy to know that this book does not overlap in content with Malcolm Jeeves and Warren Brown's book *Neuroscience, Psychology, and Religion: Illusions, Delusions, and Realities about Human Nature* published earlier in 2009. While Jeeves and Brown's book emphasizes the role of developments in brain science and the biological underpinnings of cognitive processes that impact religious questions, Barrett stays true to the literature in cognitive science, which discusses conceptual and theoretical mental constructs in relation to similar religious topics.

Barrett has clearly written the book for the nonspecialist. He notes that a large number of highly educated people are not even aware that cognitive science exists as a discipline, let alone that recent experimental findings in the field could amplify our understanding of religious beliefs. *PSCF* readers who are academics might want to consider requiring this book for undergraduate students in psychology, philosophy of science, or neuroscience programs as a conversation starter that could then be supplemented with more in-depth scholarly writings.

A central goal of the book is to show how cognitive science can address meaningful questions, such as why do people believe in an immortal soul? Readers familiar with Ian Barbour's well-worn four-fold typology of how science might come into dialogue with religion will recognize that Barrett embraces the typology of *integration*. From this perspective, a dialogue built from a foundation of mutual respect between the scientific and religious communities needs to exist if there is to be meaningful, substantial progress in finding answers to complex questions regarding human thought.

The book contains nine chapters, five of which address theological themes. In chapter 1, Barrett offers a broad definition of what cognitive science encompasses. It is an interdisciplinary field that is focused on the human mind and how it functions. Although there is a rich amount of scholarship written about nonhuman minds, this book is focused exclusively on human, mostly cognitive, processes. Areas such as perception, attention, memory, reasoning, learning, decision-making, and even emotion are all seen as a dimension of cognitive science. Such breadth draws professionals from a variety of disciplines such as psychology, computer science, linguistics,

philosophy, and anthropology. Chapter 2 discusses the notion that the mind is embodied, and that although it develops within genetically limited "hard-wired" parameters, brain plasticity affords the opportunity to change and adapt to new circumstances. Chapter 3 is one of the strongest chapters in the book. Essentially, it attempts to answer the question, how do we arrive at beliefs and does cognitive science have anything to contribute to this discussion? Barrett introduces the constructs of reflective beliefs (those we consciously hold) versus nonreflective beliefs (products of an intuitive system) and how they could interact with each other. Chapters 4, 5, and 6 unpack the notion of "natural cognition" and how it brings about nonreflective beliefs regarding the world, humans and the divine. The last three chapters deal with how we conceive and understand the divine and attempt to answer the question, why are gods so recurrent across cultures? In addition, brief forays are made into topics such as religious rituals, petitionary prayer, spirit possession, and ecstatic mystical encounters.

Each chapter begins with a clear summary of what the chapter will cover. The book includes a glossary of terms and over twenty-five pages of notes, not including the bibliography. Our only criticism is that the book could have gone deeper into a fewer number of topics and still have produced a compelling story.

There are far too many books written within the genre of science and religion that originate from an author's narrow perspective or biased agenda. Barrett's book is refreshingly fair with no hidden agendas. To his credit, he maintains a high degree of respect for members within the theological community and at no time talks down to them. We enthusiastically embrace his attempt to bring recent developments in cognitive science to a general audience that appreciates a religious worldview.

Reviewed by Bryan C. Auday, Professor of Psychology, and Levi Miller, Department of Psychology, Gordon College, Wenham, MA 01984.

THE BELIEF INSTINCT: The Psychology of Souls, Destiny, and the Meaning of Life by Jesse Bering. New York: W.W. Norton and Company, 2011. xiii + 252 pages. Hardcover; \$26.95. ISBN: 9780393072990.

While evangelical Christians are still mired in their antievolutionisms, the evolutionary sciences march forward with little light being shed on them by the Gospel of Christ. One such scientific discipline is evolutionary psychology. Most evangelical scholars dare not interpret this science through the lens of a Christian metaphysics since they are forced to submit to the historicity of Adam. But I contend that this is an error since it squanders an opportunity to "take captive every thought to make it obedient to Christ" (1 Cor. 10:5).

Jesse Bering's *The Belief Instinct* is a frontal assault on the existence of God. Like the inimitable Richard Dawkins, he views notions such as ultimate purpose and the divine as merely an illusion. But in contrast to Dawkins, he rejects the notion that religion is just "a misfiring" and "accidental byproduct of our mental evolution" (p. 6). Instead,

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Bering's central thesis contends that God and religion are an "adaptive illusion" that "helped our ancestors survive and reproduce," and as a consequence "would have been strongly favored by natural selection" (p. 7). He concludes that religious belief is a human instinct. Of course, my Christian theological instincts revel in such a notion. Atheist Bering is offering to evangelical scholarship the notion that our brain is built with a proclivity to be receptive to things divine.

Bering's evolutionary psychology of religion features four main components. First, the theory of mind undergirds his model. This is the phenomenon that humans have the ability to think about another mind and its intentions. For example, we all have moments when someone behaves in a completely unexpected way, and we immediately ask, "What were they thinking when they did such and such?" Bering argues that though other animals might express in some degree a theory of mind, humans are "uniquely good at it" (p. 33). In fact, we even overextend it to objects to which it does not apply, such as our "stupid" car or computer when either breaks down. And it is here wherein Bering contends that God is merely another misapplication of theory of mind whereby humans posit a mind or mental state upon the inanimate universe.

The second part of Bering's thesis is rooted in the human inclination of "teleo-functional reasoning" (p. 55). Accordingly, "our minds are heavily biased toward reasoning as though a designer held a conception in mind" (p. 54). We naturally look for causes and agents to explain events. In particular, humans have evolved a "hyperactive agency detection device" that overreacts to any indications of the presence of another creature. For example, the unexpected rustling of a bush triggers the mind to immediately assume a potential threat such as a dangerous animal instead of an innocuous breeze. From an evolutionary point of view, it is better to overreact and survive. In this way, Bering asserts that the brain is built to see design and agentic activity in both nature and events in life, and we misattribute these to God/s.

The universal human tendency for "psychological-continuity reasoning" (p. 117) is the third component of Bering's model. He notes that nearly everyone believes they exist after their death; in fact, we have an "innate sense of immortality" (p. 125). But dysteleologist Bering, who embraces "extinctivism," the notion that our existence completely ends with death (p. 118), is quick to argue that belief in life after death is another misuse of the theory of mind, with our own mind being extrapolated into the future. This belief is further supported by our own psychological experience of "commonsense dualism" (p. 128). It is easy for most to assume that we have both a body and a soul or some sort of essence beyond our physical nature. And once the body dies it seems counter-intuitive to think that we or a loved one is completely annihilated. Disembodiment is intuitive.

The final part of Bering's evolutionary psychology of religious belief deals with social behavior. He notes,

Theory of mind had an enormous survival value because it allowed our ancestors to be empathetic and intensely cooperative, not to mention Machiavellian and strategic by deliberately deceiving competitors. (p. 172)

As a consequence, a generalized sense of morality evolved, "putting the group's needs ahead of one's own selfish interests" (p. 183). Upholding the social interests of the group increased reproductive fitness, but noncompliance increased genetic ostracization. Theory of mind led to a sense of being watched by the group. And coupled with the previous three components in Bering's model, the sense of being watched by God/s with moral demands arose. Bering argues that our evolutionary past is the reason for the "constant tension between the intrinsic good and evil in each of us" (p. 183), but in reality "there is no being good for goodness sake" (p. 188) because only selfish genetic drives are ultimately behind our social and religious moral instincts.

The Belief Instinct is a well-written and accessible book that draws on and explains the latest literature related to the evolutionary psychology of religion. Bering succumbs to the fallacy that explaining a phenomenon explains it away. But to his credit, he admits,

One can never rule out the possibility that God microengineered the evolution of the human brain so that we've come to see Him more clearly." (p. 38)

Though the notion of divine microengineering sounds like a god-of-the-gaps, the idea that God ordained evolution to create the human brain in such a way as to be receptive to him is consistent with Christian faith. If we use the evolutionary mechanism of co-option, Bering's insights on the origin of our religious instincts can be aligned with the traditional notion of natural revelation both in nature (Rom. 1:18-20) and our conscience (Rom. 2:14-15), as well as in the inner spiritual conflict we experience (Rom. 7:7-25; Gal. 5:13-25). Every science can be viewed through the Christian categories, and it behooves evangelical scholarship to make evolutionary psychology obedient to Christ.

Reviewed by Denis O. Lamoureux, Associate Professor of Science and Religion, St. Joseph's College, University of Alberta. ✕



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