



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.

Reviewed by Arnold E. Sikkema, Associate Professor of Physics, Trinity Western University, Langley, BC V2Y 1Y1.



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.

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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.

Reviewed by James A. Beverley, Professor of Theology and Ethics at Tyndale Seminary, Toronto, ON M2M 4B3.

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?

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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.

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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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