Christian Culture

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THE SCIENCE OF THE GOOD SAMARITAN: Thinking Bigger About Loving Our Neighbors by Dr. Emily Smith. Zondervan Books, 2023. 288 pages. Paperback; $19.99. ISBN: 9780310366690.

"Who was the neighbor?" This is the question that Jesus asks in the tenth chapter of the book of Luke, and the question that prompted Emily Smith's book *The Science of the Good Samaritan*. She sets out to show her readers that neighboring is about shifting our thinking and worldview. To achieve this task, Smith wields her wealth of education and experience. Having earned a Master of Science in public health from the University of South Carolina and a PhD in epidemiology from the Gillings School of Global Public Health at UNC Chapel Hill, she is currently an assistant professor in the Department of Emergency Medicine/Surgery at Duke University and at Duke Global Health Institute. She is a mother, a pastor's wife, and the creator of the popular Facebook page "Friendly Neighbor Epidemiologist." Throughout her book, Smith weaves together her Christian faith and her vocation. To her, "epidemiology is the story of the Good Samaritan!" (p. 28); "the sacred work of telling people's stories through calculus and weighted metrics and integrals" (p. 145).

The book is divided into three parts: centering, cost, and courage—the themes in the story of the Good Samaritan (Luke 10:25–37). The first part is about changing our mindsets and challenging our worldviews through centering. The second part is about the cost of doing so; the third is about the courage needed to live as neighbors and to show our faith through deeds. Each part has chapters that begin with quotes from scripture and/or inspirational scholars. The book concludes with acknowledgments and an appendix that contains practical tips, a reading list, and bibliographic notes.

In Part 1, Smith describes centering as the act of showing attention and focusing. The things we center are the things that compel us. She argues that, as Christians, we must center our neighbors: "The Good Samaritan story shows us that centering on our neighbors requires us to shift our attention and focus toward our neighbors" (p. 11). In doing so, we see many inequities. We see the hard truths of discrimination, structural violence, marginalization, and privilege. If these concepts put you on the defensive, I suggest focusing on chapter 5, in which Smith dismantles common arguments with grace and wisdom. She tells how her grandparents earned everything through hard work and perseverance. They didn't have wealth. But they did have white privilege. Smith acknowledges her own family's efforts and hard work, while also acknowledging the system that worked for them and not against them. Her grandparents could own land and farm at a time when others were unable to do so simply because of the color of their skin.

In nearly every chapter, Smith shares examples from around the world: New Mexico, Texas, Honduras, Somaliland, Burundi, India, and more. Readers learn of events such as the Great Scramble, consider the importance of statues such as the Mothers of Gynecology Monument, hear stories from United Nations meetings, and evaluate the importance of access to healthcare. The reader will have both their worldview and their knowledge of geography challenged.

Part 2, surprisingly only two chapters, focuses on the cost of living as a neighbor. Perhaps naively I thought that this section would discuss the financial cost of helping our neighbors. Certainly, food and medical supplies cost money. But instead, in thirteen concise pages, Smith focuses on the costs to our relationships and our health. I found the stories shared in these pages to be particularly heartbreaking. Not to say that the stories of racism in the United States and poverty in Somaliland were not heartbreaking; they definitely were. But the stories of Christians threatening Smith and her family were particularly distressing. She writes that "more than 90 percent of the threats" that she received were from Christians (p. 119). This is an unexpected cost. Throughout the pandemic, Smith has shared her love and epidemiological expertise to help people around the world understand what was happening through her Friendly Neighbor Epidemiologist page on Facebook. Then members of her own community and church family attacked her for it; she even received hand-written threats in her family's mailbox. She recalls a message written in red and black marker that used both biblical revelation language and also language she couldn't repeat. She and her family had to move for their own safety.

Part 3 focuses on the courage to relearn, dismantle our unconscious biases, and live as neighbors. It includes a challenging chapter entitled "Topics Too Many Evangelicals Don't Want to Talk About" (p. 169). This explored several contentious topics such as socialism, capitalism, equity, climate change, and more. She reminds readers that God cares about our faith, and also about how we spend our money and care for our planet. Smith argues that we shouldn't be scared of taboo words. Instead, we should "hold the words up to the cross and see if they reflect heaven" (p. 180). Another equally challenging chapter was entitled "How Do We Measure the Worth of a Life?" (p. 190). Smith tells the story of two doctors: Sheik Humarr Khan, who was Sierra Leone's top Ebola physician, and an unnamed American doctor. Both contracted Ebola while working in Africa. At the time, there was an experimental drug available, but only enough for one person. Although it was stored in the health facility where Humarr Khan was, he didn't receive it. Instead, it was shipped to

the American doctor in Liberia. This doctor lived and the African doctor died. Smith explains that part of "being courageous is coming to terms with the fact that these inequities happen all the time" (p. 199).

While much of the content was inspiring, I also found some disappointments. For example, Smith's suggestion to "have courage to be fully you" (p. 141) made me hesitate. Statements like this may lead people to be more complacent than courageous. Yes, we shouldn't try to be someone else. We should use our unique giftings to love God and love our neighbors. But shouldn't we always strive to be better? To be like Jesus?

Strengths of the book include the detailed stories and science, with moving anecdotes alongside convincing data. All of these are equally inspiring and thought provoking. Emily Smith is clearly a skilled storyteller and scientist. Thus, this book is a successful display of science communication. It integrates science and faith seamlessly. For example, she frequently repeats a phrase attributed to Saint Dominic: "your desk is your prayer bench" (p. 69). Science and faith are not separate; for Smith, her epidemiological desk work is how she communes with God and expresses her faith. Overall, this book should satisfy a variety of readers.

I recommend this book for anyone curious about the field of epidemiology, or curious about how knowledge of public health and poverty can help Christians be good neighbors. While this book may not be a suitable text for a university-level course, since it is neither a "faith book" nor a "science book" (p. 3), it does serve as a helpful example of science as vocation and of science and faith integration. For those with a theology background, it helps to show that science can be embraced. For those with a science background, it can shows that faith can turn work into a calling.

Throughout the book, Smith introduces the reader to many people: Dr. Edna Adan Ismail (p. 15), Frederick Douglass (p. 44), Dr. Paul Farmer (p. 77), Father Gustavo Gutiérrez (p. 80), Dr. Kathryn Hayhoe (p. 172), and many more. So, who was the neighbor? Clearly, these people were. They courageously centered their lives around their neighbors. May we learn from their examples, and from the expert stories and science shared by Emily Smith.

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Environmental Science

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CREATION CARE DISCIPLESHIP: Why Earthkeeping Is an Essential Christian Practice by Steven Bouma-Prediger. Baker Academic, 2023. 213 pages. Paperback; $25.99. ISBN: 9781540966322.

Steven Bouma-Prediger is a religion scholar at Hope College, Michigan, and a well-known theologian who has written about the need for Christians to care for the environment. In his latest book, Bouma-Prediger summarizes the main arguments for earthkeeping and illustrates them with personal testimonies, which make for a delightful and convincing read. He utilizes a pastoral tone that does not water down the scientific content while backing up his arguments with abundant footnotes and Christian meditations from scripture at the end of each chapter. The author presents earthkeeping as a practice solidly rooted in the Bible, Christian theology, and tradition, that is demonstrated in several Christian communities. In short, he maintains that "care for the earth and its flourishing is part and parcel of what it means to be a Christian" (p. 3).

Earthkeeping is a concept related to creation care that, in Bouma-Prediger's mind, is better than stewardship. Stewardship in English "churchy" jargon often minimizes the inherent value of the environment, seeing nature as a collection of resources to be exploited. By using the word earthkeeping, the author emphasizes the meaning of Genesis 2:15: "to take care of the garden."

After clarifying why we should read his book in the first chapter, Bouma-Prediger walks us through selected scriptural passages about nature in the second chapter. We realize the strong connection between us and the other creatures and God's provision to all the created order. He also emphasizes the need to revise our view of the end times. If Christians see the future as living in an immaterial heaven, the earth is not worth saving. With a proper reading of scripture, we understand that God loves his creation, and he expects us to care for it.

The third chapter delves into theological aspects of earthkeeping, in which the author dismantles an accusation that it implies pantheism. Christian theology removed gods from nature but did not remove nature's sacredness. No creatures are gods, but they still have value to God. The pillage of nature cannot be justified. A biblical meditation from the book of Job centers on the use of Leviathan and Behemoth to understand ecological hospitality. The lengthy descriptions of these creatures (assumed by the author to be the crocodile and the hippopotamus) are a reminder that "we humans are not at the center of things" (p. 82). God cares for these creatures even though they are not designed for our specific use.

Chapter 4 borrows relevant teachings about nature conservation from different theologians influential in the history of the Christian church. He quotes Pope Francis, Patriarch Bartholomew I, H. Paul Santmire, Rosemary Radford Ruether, and Randy Woodley. Their views represent diverse theological positions: Roman Catholic, Eastern Orthodox, Protestant, Ecofeminism, and Native American Christian, respectively. The chapter ends with excerpts from the "Joint Message for the Protection of Creation,"

a document written in 2021 by the heads of the Catholic, Eastern Orthodox, and Anglican churches.

Bouma-Prediger gives a practical guide in chapter 5 to describe what to do in our earthkeeping ministry. We should start with reflections on scripture and rescuing Christian tradition in our relationship with the natural world. Living simply is a virtue to cherish, and avoiding overconsumption minimizes severe damage to the environment. "Remember that you have never seen a hearse with a luggage rack" (p. 137) is a phrase that admonishes us not to be greedy with the environment. The disconnection of humans with nature is regarded as "ecological homelessness," which should be counteracted by developing the virtue of caring for creation.

In the author's discussion of environmental justice and environmental racism, he points out that the consequences of pollution and resource depletion are suffered unequally by specific human communities. To be aware of these injustices, we should educate ourselves on how to manage the earth wisely and not abuse its resources. In this way, we will develop ecological consciousness. This section finishes with several ways we can practice earthkeeping as individuals and as a community, after we have learned how to practice gratitude, generosity, and the sabbath rest.

The last chapter presents a biblical statement of shalom: "It is not just about reconciliation between people or reconciliation between humans and God. It is about flourishing of all the earth" (p. 187), where God's creatures, including plants and animals, praise the Lord.

An important omission from this book that is essential to understanding the value of creation care was Lynn White Jr.'s criticism of Christian theology as an exploiter of nature in his influential article "The Historical Roots of our Ecologic Crisis."[1] Some may argue that much of the "greening" of theology was a response to this article, which corrected a misunderstanding of "dominion" and the stewardship mandate in scripture.

Bouma-Prediger's assertion that the afterlife will be "earthy" may not be acceptable to some evangelical groups. If we do not go to heaven and heaven comes to us, then the "left behind" theology is wrong, requiring us to value this earth and not consider it disposable. "An escapist eschatology implies an ethics of neglect and exploitation" (p. 69).

The author's endorsement of positions considered by many as extreme will also be controversial. For example, he quotes the environmental activist and writer Wendell Berry several times, once saying that the destruction of nature is "the worst horrid blasphemy" (p. 39). Most Christians would probably take issue with that statement. He also quotes the African American theologian James Cone, who accuses conservationists of being racists if they do not fight against white supremacy. Environmental racism is a possible root of injustice and nature destruction in some cases but conflating it with white supremacy does not help the Christian cause.

These controversial topics do not diminish the book's value as an excellent pastoral and academic resource for Christians and anyone interested in conserving nature. Bouma-Prediger is highly qualified to teach us about creation care and the different ways to engage in earthkeeping. His masterful biblical exegesis is persuasive in making the case that the environment should matter to Christians regardless of their political perspectives. I highly recommend this book.

Note

[1]Lynn White Jr., "The Historical Roots of Our Ecologic Crisis," *Science* 155, no. 3767 (1967): 1203–7, https://archive.org/details/HistoricalRootsOfEcologicalCrisisV.

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RECONCILIATION IN A MICHIGAN WATERSHED: Restoring Ken-O-Sha by Gail Gunst Heffner and David P. Warners. Michigan State University Press, 2024. 314 pages. Paperback; $29.95. ISBN: 9781611864939.

I am certain, because it piqued my anxious imagination, that I first heard the phrase "reconciliation ecology" from my friend Dave Warners (coauthor). It's at least partly an allusion to the phrase "restoration ecology," which was by then recognized as a subspecialty of applied ecology, even having its own academic journal. Its goal is scientific support for restoring biodiversity and ecosystem function. The problem with restoration ecology is that, while populated with dedicated researchers and practitioners, it struggles with making its case in the wider North American culture.

This new book by Heffner and Warners addresses that issue and is an absolute joy for the hopeful direction it offers. My review copy is well marked up and, having read it twice, I can report that it gets richer on second pass. It too is about restoring biodiversity and ecosystem function, but it probes deeper into human worldviews and their effects on both degradation and restoration.

Plaster Creek (Grand Rapids, MI) is the "Ken-O-Sha" in the title. That Heffner and Warner choose to use the Ottawa name (translation, "Water of the Walleye") presages their centering of human history and cultural significance in its Indigenous roots. It also recognizes that the human-nature connection and relationship, which is associated with Indigenous worldviews, offers an alternative to the rigorous commodification and conquest attitudes of white settlers and, regrettably, most of their descendants.

The book is ostensibly an expansive report on the authors' efforts (with volunteers, students, and community members) to restore a degraded urban stream to

better ecological health. It carefully examines the historic, cultural, ecological, and human contexts that led to the stream's degradation and how their team, Plaster Creek Stewards (PCS), navigates those contexts to restore the human-nature connections to enable the stream to recover.

Key to the restoration story has been the co-founding of the PCS group by Heffner and Warners. This group is an affiliation of watershed stakeholders, students, and volunteers who provide a collective energy and (literal) muscle for the restoration work.

Reconciliation in a Michigan Watershed is well written and good to read. It has thirteen chapters organized into three thematic sections: (1) recognizing the problem, (2) acknowledging our (settlers and descendants) complicity, and (3) committing to restoration. The treatment is rigorous in an academic sense with liberal (though unobtrusive) use of footnotes that link to a reasonably extensive bibliography spanning literature and poetry, news sources, and scientific journals. There is a table of contents and an index of topics to aid in orientation.

Reconciliation … draws from scholarship in a wide variety of disciplines including geology, human history, ecology, sociology, policy, and even faith traditions. Indeed, this could have been simply a successful academic book, making all the interdisciplinary linkages by first explaining the degradation of Ken-O-Sha and then supporting its movement toward restoration within a philosophical frame of reconciliation.

The book is all that for certain, but what sets it apart is the truly tactile blending of personal stories (not only of the authors but also of volunteers and watershed residents) and a clear sense that the authors invested themselves in the restoration work and the people connected to it. There are stories of their apprehension and missteps in public engagement, of discovery or rediscovery of ecological richness and relic rare species, of a living memory of the good and bad. You read this and you know something intimate about the creek, something that can emerge only because the authors write from firsthand experience—mucking about, both literally and metaphorically, in the socio-ecological realities—and from an unspoken but clear love of the place.

I think this is a singularly important book. The term "reconciliation ecology" traces back to one of those interesting thought pieces found in academia. The sort of thing that one reads and maybe offers up as a discussion topic in a student seminar in which we sort through abstractions in a self-satisfying way. This, though, is an example of the idea put into emerging successful practice with all the granular detail about wins and losses, where the dirt under one's fingernails (again, real and metaphorical) is hard won.

Reconciliation …, the book and the idea, is a next step in the authors' scholarship in re-considering the stewardship paradigm for Christian creation-care discipleship. Both authors were contributors to *Beyond Stewardship* (Calvin University Press, 2019), in which an interdisciplinary group of Christian scholars assembled to consider moving beyond the transactional/detached nature of the common stewardship paradigm (God wants me to care for creation so I must care for it) to a paradigm of interrelationship and communion between Creator and creation. It is easy to see the intellectual and spiritual connections between both books and how the authors' experience with PCS grounded their thinking.

It is telling and a little damning that Plaster Creek became "west Michigan's most contaminated waterway" in the very backyard of Calvin University, an institution that rightfully prides itself on rigorous Christian scholarship located in a city (Grand Rapids) closely identified with robust Reformed and Calvinist traditions. It speaks to a blind spot in expression of Christian faith and, likely, a pathology in worldview. Gail Gunst Heffner and David P. Warners make a wise and accurate diagnosis and offer the most promising treatment that I am aware of: reconnection.

It is a wise book and an important book. Highly recommended.

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HOPE FOR GOD'S CREATION: Stewardship in an Age of Futility by Andrew J. Spencer. B&H Academic, 2023. 240 pages including indices. Paperback; $24.99. ISBN: 9781087751474.

Andrew Spencer, who blogs at ethicsandculture.com, has a PhD in theological studies, serves as a supervisor of operations training at a nuclear power plant, and is a senior research fellow for the Institute of Faith, Work, and Economics. His 2023 book *Hope for God's Creation* takes on a difficult task: defining and expanding a Christian environmental ethic based on orthodox, theologically conservative doctrine. Creation should be stewarded with hope even though we are currently in an age when it is subject to futility (Rom. 8:19–21). Overall, Spencer offers a strong theological basis for creation care to an American evangelical readership.

The book considers four major doctrines: Revelation, Creation, Anthropology, and Eschatology. In "Part I: The Background of Creation Care," Spencer describes reasons for creation care, dangers of "environmental entanglement," and a history of humanity and the environment. Christians need to transpose doctrine to action, applying the theocentric approach of ancient Christianity to modern questions, because ethics should flow from theology rather than the other way around. Spencer repeatedly warns that it is dangerous to entangle Christian belief with environmentalism: the fusion could result in pantheism,

contentious issues, and progressive causes such as the liberal social gospel becoming our focus instead. However, Spencer concedes that other ideas, such as libertarian economics, American representative democracy, and even opposition to climate change theories, can also become ultimate values in people's minds and distract from the gospel.

In a summary of the history of environmentalism, Spencer responds to Lynn White Jr.'s famous 1967 essay, "The Historical Roots of Our Ecologic Crisis,"[1] in which White claimed that ecological problems are rooted in European medieval Christianity because it was an extremely anthropogenic religion. Spencer disagrees, explaining that environmental degradation did not begin in the Middle Ages nor is it found only in Christianized parts of the world. Elsewhere, Spencer attributes environmental degradation to a variety of problems: universal human sin, devaluation of creation, modernity, and over-prioritization of economic concerns.

"Part 2: A Theology of Creation Care" relates some classic theological doctrines to creation care. The doctrine of Revelation says that God speaks truth through the special revelation of scripture and the general revelation of the whole of creation. Scripture is true, trustworthy, and authoritative. It tells us that the path to salvation is through Jesus Christ, but it is not comprehensive. The doctrine of Creation holds that the inherent value of all creation derives from its relationship with the creator. The natural world reflects God's glory, fulfilling the purpose for which he intended it, and science allows us to study it in detail. Biblical passages suggest that the curse on the ground after the Fall is both because of human sin and for the good of humans, to draw us to the truth of Christ (e.g., Rom. 8:18–25).

Unlike other creatures, we humans sin, reflect on our lives, have a God-given role as stewards, and bear the *imago Dei*. The doctrine of Anthropology says that we are God's stewards, part of God's great plan of restoration. The goal of humanity is to glorify God as we cultivate creation and work toward shalom. Eschatology, the doctrine of the end times, completes the arc of creation—from a garden with a tree of life and a river, through sin and the wilderness, to redemption with a heavenly city with wildlife, cultivation, technology, and humans. Some people read the Bible to say that the creation will be completely destroyed and a new one made, while others view the earth's end as a fiery purging of evil and the renewal of the current creation in a glorified form. Spencer argues for creation care regardless of your beliefs about God's plan for the end times. He suggests using Francis Schaeffer's term "substantial healing" to describe the Christian task of counteracting effects of the Fall such as injustice, pollution, disease, and poverty.

Spencer lays out ways to live out the mandate for creation care in "Part 3: The Practice of Creation Care." He describes the tension between American culture's individualism and collective action, saying that, just as the Israelites cared for the city of their exile (Jer. 29:7), so Christians should pursue justice and human flourishing for all. He refers to Schaeffer's concept of the church as a "pilot plant," a scaled-down version of the world in which broken relationships are healed. We become more Christlike by doing Christlike acts; as we bring new Christians into faithful acts, we disciple them in the faith as well. Spencer suggests that readers who still are unconvinced about the science of climate change could think of Pascal's wager; we should lower our carbon footprint regardless, since the costs of being wrong are high and many solutions to climate change result in other benefits.

Christians are called to hope in a world full of despair. Spencer advocates for a local focus in which we form a love of place and connection with our neighbors. Resisting the constant pressure to purchase more will leave us more content and less harried. We can make our churches and communities more efficient and intentional in several ways. Spencer himself planted part of his church property in wildflowers to promote pollinators, and he participates in neighborhood clean-ups, working with nonbelievers on projects where his values align with theirs. Spencer resists efforts by extremists to control people's behavior by proposed legislation such as the Green New Deal, advocating instead for balanced regulation that uses incentives to motivate and to drive innovation.

Throughout the book Spencer highlights several themes. One is how Christians have related to the environment. He claims variously that theological conservatives have had an interest in creation care like that of the culture at large, but most people are too involved in their own lives to lead any movement. He accedes that care for creation is not a feature of Western, modern cultural Christianity.

Another theme is concern over the danger of becoming too focused on ideas such as the social gospel of Protestant liberalism and losing focus on the gospel and our identity as Christians. Spencer argues that the abandonment of environmentalism by Christians occurred when strident environmentalists tied care of the environment to other causes.

The nature of science is another book-wide theme. Spencer cautions against scientism, a dangerous philosophy that holds that the only truth that can be discovered is found by study of the material universe. Instead, science is limited; it cannot tell us what to value or what is right or wrong. New scientific discoveries do not threaten our faith because our faith equips us to deal with any new topic, including environmental changes. However, Spencer sometimes describes science negatively—as robbing us of wonder at nature, allowing despoiling of nature, and contributing to the environmental crisis.

Hope for God's Creation makes a compelling argument for creation care that is consistent with theologically orthodox doctrines in a way that suggests kindness, love, and hope. Nonetheless, to people who do not need to be convinced, some of the book might seem repetitive and defensive. Spencer's repeated defense of Christianity against blame for environmental problems, his description of science, and his fear of the danger of liberal values may deter people concerned about the synergistic effects of environmental degradation, poverty, displacement, and other harms to human flourishing.

Spencer does not say much about the Christian mandate to care for the poor, typically a major part of any discussion about creation care theology. He also does not mention the differential effects of environmental degradation on poor or racial minorities. Neither does he talk about evangelical brothers and sisters around the world. There is no mention of the World Evangelical Alliance, Lausanne Movement, or the many Christian organizations working globally on creation care issues.

Spencer cites Francis Schaeffer to represent Christian environmental ethics, and Katherine Hayhoe, contemporary climate scientist and Christian, to represent current Christian environmental concepts. However, he does not cite many prominent theological writers or engage with some of the doctrines one might expect in this discussion, such as the Kingdom of God or the nature of the Church. Perhaps in a follow-up book, Spencer may address how orthodox doctrines transpose into action in a world in which the majority of Christians are not American. For his target audience, evangelical Christian Americans, though, this book is a valuable contribution.

Note

[1]Lynn White Jr., "The Historical Roots of Our Ecologic Crisis," *Science* 155, no. 3767 (1967): 1203–7, https://archive.org/details/HistoricalRootsOfEcologicalCrisisV.

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Evolutionary Theory

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ORIGIN STORY: The Trials of Charles Darwin by Howard Markel. W.W. Norton, 2024. xii + 352 pages, including endnotes and index. Hardcover; $35.00. ISBN: 9781324036746.

Howard Markel, a physician and prominent historian of medicine, has written several books about pediatrics; quarantines; epidemics; cocaine addiction; the Kellogg brothers of Battle Creek, Michigan; and the discovery of the structure of DNA. Extrapolating from that list, a book about Darwin is somewhat surprising; the only obvious connection is Darwin's generally poor health. *Origin Story* is shorter than its pagination implies, with generous margins, seventy pages of endnotes, wide spacing between lines of text, and many low resolution, black-and-white images that sometimes add nothing of value.

The narrative, however, is well written, often engaging, and heavily based on primary sources that are the raw materials from which historians create history—newspapers, magazines, published correspondence (especially from the massive modern edition of Darwin's letters[1]), and unpublished manuscripts. Markel draws effectively on contemporary descriptions of personality, appearance, and character, such as poet William Allingham's observation that Darwin was "tall, yellow, sickly, [and] very quiet" (p. 169).

What were Darwin's trials? His illnesses, concerns over how his theory would be received, and a deep anxiety to be fully credited for discovering natural selection. Markel provides a wealth of detail on each. Unsurprisingly, much attention is given to medical history, especially Darwin's famous maladies, which have inspired diverse diagnoses by qualified experts. While cautioning readers not to expect certainty, Markel favors the view that Darwin "likely suffered from systemic lactose intolerance" (p. 171), as evidenced by his constant battles with headaches, indigestion, nausea, and flatulence.

His poor health directly impinged on the legendary debate about evolution at Oxford in 1860 between Bishop Samuel Wilberforce and anatomist Thomas Henry Huxley, a close friend of Darwin whose nickname "Darwin's Bulldog" encapsulated his love of rhetorical conquest. Ironically, Darwin himself was absent. Why? "Instead of defending his controversial work to his colleagues at Oxford, the self-proclaimed invalid was at a water cure in Surrey" (p. 175). Historical literature devoted to the debate is voluminous. Markel has read everything important—one footnote by itself runs nearly two pages. His comprehensive narrative fairly presents the complexities facing historians. Which original sources are most reliable? What were the biases of their authors? Can we determine with any confidence what actually happened? Many historians have doubted the oft-repeated story that Wilberforce impugned Huxley by asking whether the ape in his family tree was his grandfather or his grandmother, inviting an equally insulting riposte from Huxley. The report in the influential literary magazine, *The Athenaeum*, did not contain this story, but in 2017, Richard England found a local newspaper account that did, effectively altering the historical landscape.[2] Markel's emphasis on this raucous exchange as an important moment in the reception of Darwin's theory is fully justified.

Equally commendable is his treatment of Darwin's dilemma, when Alfred Russel Wallace sent Darwin an essay outlining essentially the same theory of evolution by natural selection that Darwin had formulated twenty

years earlier—but had not yet published. Markel chastises Darwin, Charles Lyell, and Joseph Dalton Hooker for "the subtle devaluation of Wallace's essay" (p. 54) in their carefully orchestrated handling of it at a meeting of the Linnean Society and the subsequent publication in their journal, all designed to ensure Darwin's priority. However, the statement that "Wallace coined the term *Darwinism*" (pp. 65–66) in 1889 is not correct. According to the *Oxford English Dictionary*, it was used in 1860 by Huxley and twenty years earlier in reference to the views of Charles's grandfather, Erasmus Darwin, not to mention the title of Charles Hodge's 1874 book, *What Is Darwinism?*

Just one aspect of this book merits serious criticism: shallow and sometimes misleading coverage of Christian beliefs and their role in the history of science. Perhaps the author's bias is partly to blame. At one point, he describes "the doctrine of materialism" as a "foundational point of modern science" (p. 225), *ipso facto* ruling out any higher dimension(s) of reality, even for humans, although neither mechanistic neuroscience nor reductionist philosophy has solved the mind-body problem.

I do not begrudge Markel his point of view, but a better understanding of religious ideas could have made an otherwise excellent book even better. For example, he speaks of "the hidebound history of Christianity" (p. 8) as if theology never changes or engages changing science in productive conversation. Darwin's critics did not hold "that God created each species perfectly, in His image" (p. 43), a distinction reserved only for humans. The broad assertion that "natural theologists" (Markel's peculiar term for natural theologians) simply "shoehorned the 'facts' they discovered into awkward explanations of the Holy Scriptures," whereas Darwin and Hooker "were fearless in letting the data they collected carry them to logical, fact-based conclusions" (p. 27), is unwarranted. It has never been the job of theologians to discover scientific facts (even if some have done so), and the natural theologians of Darwin's day cannot be blamed for drawing speculative theological inferences from the science of the time, any more than we can blame Darwin for drawing speculative theological inferences from his own theory.

The most important natural theologian in Darwin's circle, the brilliant Anglican priest, polymath, and Cambridge professor William Whewell, was an accomplished mathematician with a profound respect for scientific facts, a few of which (related to the tides) he helped discover. His ideas about philosophy of science and natural theology strongly influenced Darwin, who quoted with implicit approval a passage from Whewell's *Bridgewater Treatise* (a major work on natural theology) opposite the title page of *On the Origin of Species*. Nevertheless, in the footnote accompanying this very point, Markel speaks dismissively of Whewell's "inner conflict on science and religion" concerning the possibility of life on other worlds, because "he argued [in another work] that human life existed only on earth, thanks to God's special relationship with his greatest creation, and railed against those who tried to usurp Judeo-Christian doctrines with unproved scientific theories" (note 56, p. 284). It is instructive that Michael J. Crowe, the leading expert on nineteenth-century debates about this issue, offers a very different assessment of Whewell's position. He "drew heavily on widely available scientific information," treating "the question of extraterrestrial life as a scientific question, rather than an issue that must be decided on religious grounds."[3]

Finally, Merkel's unqualified claim that Lyell's ancient earth was "blasphemous" (p. 22), when first proposed in the early 1830s, contradicts the fact that orthodox Christian scientists and clergy had for decades been finding ways to embrace it without denying biblical truths. Elsewhere he writes unambiguously about Lyell's "Christian faith" being opposed to human evolution (p. 96). This fails to capture the complexity of Lyell's religious beliefs. According to Martin Rudwick, although Lyell never actually "abandoned his earlier nominal allegiance to the liberal wing of the Church of England," by the 1850s Lyell "had become *de facto* a Unitarian after seeing the role of that denomination in America," which he had visited several times starting in 1841–1842.[4] He and his wife worshipped often at the Little Portland Street Unitarian Chapel in London. At the same time, he could not comprehend how the human mind could supervene the rest of nature, if it had arisen from such primitive forms of life. Even as a Unitarian, Lyell continued to believe in human pre-eminence and a providentialist interpretation of natural history inspired by natural theology, while vociferously attacking the biblical literalism of the scriptural geologists (intellectual ancestors of today's young-earth creationists). This theological perspective ultimately lay behind his lifelong struggle with common ancestry. Yet, Markel fails to mention Darwin's very similar quandary: "With me the horrid doubt always arises whether the convictions of man's mind, which has been developed from the mind of the lower animals, are of any value or at all trustworthy. Would anyone trust in the convictions of a monkey's mind, if there are any convictions in such a mind?"[5] Perhaps the author's materialist convictions are also evident here.

Despite my reservations, I recommend this book to anyone interested in Darwin's trials, which were very important parts of his life and career. The wealth of detail and the liberal use of primary sources cannot be ignored.

Notes

[1]Frederick Burkhardt et al., eds, *The Correspondence of Charles Darwin*, 30 vols. (Cambridge University Press, 1985).

[2]Richard England, "Censoring Huxley and Wilberforce: A New Source for the Meeting that the *Athenaeum* 'Wisely Softened Down,'" *Notes and Records of the Royal Society of London* 71 (2017): 371–84, https://doi.org/10.1098/rsnr.2016.0058.

[3]Michael J. Crowe, "William Whewell, the Plurality of Worlds,

and the Modern Solar System," *Zygon* 51 (2016): 431–49, 441, https://doi.org/10.1111/zygo.12265.

[4]Martin Rudwick, "Lyell, Charles," in *Oxford Dictionary of National Biography*, vol. 34, ed. H.C.G. Matthew and Brian Harrison (Oxford University Press, 2004), 856.

[5]Darwin to William Graham, 3 July 1881, Darwin Correspondence Project, "Letter no. 13230," accessed 15 January 2025, https://www.darwinproject.ac.uk/letter/?docId=letters/DCP-LETT-13230.xml.

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THE SACRED CHAIN: How Understanding Evolution Leads to Deeper Faith by Jim Stump. HarperOne, 2024. 261 pages. Hardcover; $29.99. ISBN: 9780063350946.

Jim Stump has served as the host of the *Language of God* podcast for BioLogos since 2019. Many ASA members, including myself, have been interviewed by Stump over the past half-decade. I have frequently interacted with Stump through our common work with BioLogos, both in his role as vice president of the organization and as host for its podcast.

In this book, Stump steps from behind his microphone and tells his own story. His voice sounds the same written as it does spoken. His methods are also the same: he continues to gather evidence through interviews. But in this book, Stump uses his feet as well as his voice, as he travels to about a dozen locations throughout America, Europe, and Africa, combining the data-driven experiences of research with those of a pilgrim searching for relics. These relics are ancient genes and bones, which tell a story of the transition from animal to human.

Stump's travelogue starts in a board room meeting years ago, which resulted in his departure from the Christian university where he had taught. He writes that his "crime" was believing that "human beings evolved over time" (p. 2). In the rest of the book, Stump speaks to us outside the board room, as he wrestles with the evidence for deep time and human evolution, all in the context of his personal philosophy in which science and faith do not only co-exist but also cooperate and co-inhere.

This is a book about a person of faith accepting science, not about a scientist becoming a person of faith (for those stories, turn to Francis Collins and Sy Garte). Stump's story is divided into five parts, with short chapters that read easily, interspersed with black-and-white illustrations by his daughter, Sloan Stump.

The first part is titled "Bible," although it might be titled "Church," because the first chapter focuses on interpretation rather than the Bible itself. Its centerpiece is not quotations, but social science data: for example, a large graph showing the increased acceptance of evolution over time (p. 20). Stump contrasts this data with a personal visit to the Ark Encounter theme park, which is built around a young-earth interpretation of Genesis.

Stump concludes the first part by suggesting that there are ways to read Genesis other than with wooden literalism. To support this claim, he quotes C.S. Lewis on how the "human qualities of the raw materials show through" (p. 54) in scripture. Stump recalls standing over Lewis's grave as a sort of anticlimax: "Nothing mystical or magical happened. … But a pilgrimage like ours to Oxford put flesh and blood on our idea of C.S. Lewis. He was a real guy" (p. 56). Likewise, Stump argues that scripture shines with God's truth despite its "human qualities."

The patience of the Creator is the subject of the next three sections: "Time," "Species," and "Soul." Stump uses vivid metaphors to illustrate the depths of time. One of these is "God's Weekly Planner for Creation," which shows the deep timespan of creation—if the billions of years of natural history were mapped to a seven-day week in a planner, then "all the events that interest us [humans] would be packed into the last hour of the week" (p. 67). A second metaphor is a stack of baseball cards as tall as the Washington Monument, which shows "there are 120,000 generations between us" and the first ancestors of genus *Homo* (p. 126).

In what becomes almost a running joke, his travel plans are repeatedly thwarted. Stump remains "philosophical," almost Stoic, as he retells these events. A vivid section in the middle of the book occurs when Stump finally reaches one of his destinations in France, seeing for himself cave paintings of mammoths in a cave where bears had scratched up the walls. "The difference between [the paintings] and what the hibernating bears left behind is shockingly obvious" (p. 135). The random bear-claw scratches are natural—but the graceful pigment-strokes left by human artists are something else entirely.

As a reader, I want to spend more time thinking about why the paintings look the way they do, and what it means that humans create beauty, while animals can embody it. As a scientist, I wonder what it means that the oldest such paintings were discovered in Indonesia, not Europe. But to address these questions, we are going to need a bigger book. As Stump says himself, the goals of his book must be more modest, because "the beauty and complexity of art and literature have to be experienced in their entirety. That experience can't be summed up in words without massive reduction in meaning" (p. 91).

Yet Stump has no choice but to sum up his reactions in words. Many of his reactions can be aligned with ancient philosophers: he reacts to his woes like Boethius did (who wrote philosophically about his unjust imprisonment) and Stump builds from a material, even chemical, view of the evolution of the universe like Lucretius and Epicurus did (although Stump builds to a Christian theology that

neither of those Greek philosophers could adopt). Stump is a philosopher to the core of his being, integrating and balancing insights from across history, as he is a Christ-follower to the very same core.

As I was reading, I thought of Gregory of Nyssa, a fourth-century Cappadocian Father who also balanced ancient philosophy with the science of his day. To my delight, Gregory showed up later in the book. Stump devotes chapter 17, "Bones and Relics," to Gregory's bones (which are apparently in San Diego today) and to Gregory's arguments about body and soul, which are "surprisingly modern-sounding" (p. 164). Gregory wrote his work, "On the Making of Man," that Stump cites as a direct response to Plato's *Timaeus* and Galen's physiology, so that Gregory too was integrating insights from philosophy and science into the light of faith. Gregory's inclusion in Stump's narrative is apt, and it shows that Christians have been writing books like this for a very long time.

In the fifth and final part, "Pain," Stump asks weighty questions about evil and suffering, which he ultimately addresses with scripture. This section has the most darkness and the most light, as it moves from the evil of eugenics to the hope of Romans 8. Stump states provocatively that "evolution is not random" (p. 213) and that cooperation points to a "clear directionality in how life has developed" (p. 214). He quotes Simon Conway Morris to the effect that life evolves with "an underlying melody" (p. 214), which happens to coincide with musical metaphors commonly used by Gregory of Nyssa. This is new and fascinating science, which is not merely compatible with, but can be driven by, a millennium-old faith. Stump doesn't have room for much detail, but his book opens a door to a world of investigation. The reader might use these citations as a springboard to find out more about the positive contribution faith can make to the study of evolution.

This book is especially targeted at those who, like Stump, grew up in faith communities and feel dissatisfied with the status quo of skepticism, whether that of young-earth creationists skeptical of evolutionists or that of materialists skeptical of faith. In his account, Stump spends the most time on time itself (arguing that we live in a very old universe) and on human evolution (arguing that a material account of the origins of the body is not incompatible with the experienced reality of the human soul).

Most of Stump's book argues a double negative—"not incompatible"—that allows a Christian to accept science but does not emphasize how science might be changed by faith. Near the end, Stump points to positive synergies between science and faith, and to other authors who have explored the same questions, from Gregory of Nyssa to Simon Conway Morris. These connect to a whole literary universe of other authors, each of whom has a slightly different answer to these big questions.

Stump's questions penetrate to the heart of the matter, inviting the reader to participate. His summaries of philosophical debates are both balanced and crystal clear (such as why symbolic reasoning is "qualitatively different" [p. 121] from what came before). He demonstrates a posture of openness rather than of defensive skepticism.

God can work through this book. A Christian with a negative or conflicted view of evolution may be convinced by Stump's patient and thoughtful narrative, especially if they are wrestling with questions of deep time and if they value direct experience in specific places. If they walk along with Stump, they too might end in a place of "sheer, unadulterated hope" (p. 247, quoting Bill Newsome).

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PURPOSE: What Evolution and Human Nature Imply About the Meaning of Our Existence by Samuel T. Wilkinson. Pegasus Books, 2024. 352 pages. Hardcover; $29.95. ISBN: 9781639365173.

As a scientist and a theologian interested in the science-faith discourse, it was a privilege to think through issues regarding human meaning, purpose, and flourishing raised in Samuel Wilkinson's book. Wilkinson received his MD from the Johns Hopkins School of Medicine and is currently an associate professor of psychiatry at Yale University. Like many of us, Wilkinson has struggled with the question, "Is belief in a benevolent God weakened by the theory of evolution?" Fortunately for the readers of this excellent book, Wilkinson challenges familiar claims about the meaninglessness of human existence with a well-organized presentation of interdisciplinary evidence supporting the author's thesis that the purpose of human existence is to choose between our competing natures: the good and the evil.

Wilkinson begins his work by pointing out two overarching dilemmas caused by the theory of evolution that must be addressed. The first is the "doctrine of randomness," which claims that if evolution is a random and haphazard process, then human existence is merely a product of intricate molecular accidents and is consequentially meaningless. The second dilemma is related to the negative evolutionary characteristics associated with human nature, particularly genetic determinism, aggressiveness, and selfishness. These are frequently cited to show the unlikelihood that human beings were created by a loving, benevolent God.

In response, Wilkinson uses evidence from the fields of genetics, biology, ethology, sociology, psychology, and economics to paint a different view of evolutionary processes and human beings. By weaving insights from these varied sciences together, Wilkinson persuasively suggests that a Higher Power used evolution as the mechanism to

create all life, and that human beings have been uniquely equipped to choose between our two competing natures of selfishness and selflessness.

Wilkinson organizes his argument into five main principles which are expanded throughout the book. First, evolution has only the appearance of randomness, because the evolutionary record repeatedly demonstrates a directionality known as convergent evolution. Citing the work of paleontologist and evolutionary biologist Simon Conway Morris and others, Wilkinson shows that while nature may use separate evolutionary pathways for plants and animals to adapt to their unique environments, these pathways repeatedly converge upon the same basic forms, structures, and functions. For example, wings evolved differently in birds, bats, and butterflies; echolocation evolved in land animals such as bats, birds, and shrews as well as in aquatic creatures such as dolphins and toothed whales; and C4 photosynthesis evolved independently among different species of land plants over 60 different times. Consequently, convergent evolution suggests that there are higher-order natural laws that compel the evolution of more highly sophisticated organisms, rather than haphazard random processes alone; this would be compatible with a Higher Power which uses the laws of evolution to create all life.

Second, nature has created competing dispositions within human beings: selfishness and altruism, aggression and cooperation, lust and love. Because human beings have evolved to be both socially generous and self-protective, Wilkinson's discussion helps the reader understand how both the positive and negative characteristics of humanity would have been beneficial for the survival of our species and describes this as the dual potential of human nature.

This leads to the third principle: free will is a key aspect of human nature and enables human beings to choose between the good and evil dispositions within us. Wilkinson persuasively argues that the case for genetic determinism has been overstated. This view claims that humans cannot exercise free will because their choices are determined by their genetics, their brain-body chemistry, and/or their environment; humans are like machines whose brain outputs are determined by the sum of the inputs. Wilkinson counters this argument using the concept of emergence, where evidence shows that the whole often has properties that are greater than the sum of its parts. He also reminds the reader that the rules at one level of reality are often not true at other levels of reality. For example, while quantum mechanics shows that the behavior of matter at the subatomic level is notoriously indeterministic, Newton's laws of motion show that the behavior of matter at the human level can be described with a high degree of deterministic predictability. Yet, when studying the behavior of animals with the simplest brains (e.g., fruit flies, leeches, and microscopic roundworms), researchers discover that their behavior is remarkably indeterministic. Therefore, it would be an oversimplification to assume that the output of human thought and behavior is nothing more than the product of what was eaten at breakfast. Wilkinson strengthens his point further by discussing the large body of psychological research showing that humans consistently and measurably influence and improve their outcomes to the degree that they choose to focus their mental energy on a goal. In other words, because research shows that conscious thought can affect behavior and outcomes, it strongly suggests that human beings do have the causal mental control necessary to make choices over their own behavior, otherwise known as free will.

The fourth principle Wilkinson shares is that strong family relationships are key to the Good Life. During difficult periods of evolutionary history, human beings were most likely to survive if they had strong relationships and were part of a close-knit group. As a result, humans became hard-wired for forming and maintaining deep relationships, especially with those they are genetically most closely related to—their family members. Psychological studies show that adults with strong familial relationships have greater happiness, life satisfaction, sense of purpose, and mental and physical health than those without such relationships. According to Wilkinson, this is how God has evolutionarily rewarded people who have accepted the responsibilities of parenthood.

Wilkinson's fifth principle is that strong family relationships are key to the Good Society. He explains that family life is nature's strongest way of helping us to choose our better natures, biologically driving humans toward the positive attributes of love, trust, loyalty, and kindness. These in turn benefit the broader community in two ways. First, parenthood redirects men's aggressive tendencies, deflecting them toward prosocial ends. Second, such environments produce better outcomes for children. Wilkinson uses sociological studies to show how marriage and engaged fatherhood lead men to adopt more altruistic and cooperative attitudes and provide safe and supportive environments for children to mature and pass down their genetics, simultaneously benefiting society. Therefore, Wilkinson concludes that rather than being a random meaningless process, evolution was God's mechanism for creating all life and shaping human beings through deep relationships in order to choose their better natures.

I found Wilkinson's arguments very robust because he doesn't rely on just one field of study to build his case. He cites research from genetics, biology, ethology, sociology, psychology, and economics to present a fresh and well-reasoned understanding of evolution and human nature that resonates well with belief in a benevolent Creator God. Furthermore, he includes viewpoints and research from voices who are not usually friendly to theism, such as Sam Harris and E.O. Wilson. For example, Wilkinson

uses Wilson's kin selection theory to help support his argument that blood-related family members would be likely to show more altruistic behaviors to one another, thus leading to more kindness and cooperation amongst the group. Yet, Wilkinson is aware that kin selection is controversial amongst some evolutionary biologists, so he also demonstrates that kinship is not required for altruistic behavior. He does this by citing additional research, including the experiments of psychologists Felix Warneken and Michael Tomasello who observed altruism in 18-month-old infants who happily helped adults they had never met before.

I was also impressed with Wilkinson's tact and objectivity when touching on potentially uncomfortable topics such as how to define "God" or the importance of strong marriages for the mental health of both children and adults in a culture in which many families have experienced divorce. Wilkinson's well-informed understanding of both sides of controversial issues appears to have made him an empathetic writer who is easier to read because he makes his points gently with the empirical evidence he brings to the table.

Wilkinson's *Purpose* has a significant and timely message for Western society in an era that is reeling from the cultural revolutions of the 60s and 70s that told us that lives of self-centeredness would make us happy. As self-absorbed individualism increased, commitment to relationships in families and communities decreased, leaving people emotionally disconnected, depressed, and anxious. Wilkinson's book is innovative in that it shows how evolution is coherent with the existence of a benevolent God. It is counter-cultural in an age that encourages meaningless sexual encounters, the abortion of our children, and selfish moral relativism. Lastly, Wilkinson's message is healing for those who wish to return a sense of meaning and purpose to their lives that comes only from deep and committed relationships with friends and family.

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Philosophy of Science

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THE BLIND SPOT: Why Science Cannot Ignore Human Experience by Adam Frank, Marcelo Gleiser, and Evan Thompson. MIT Press, 2024. xvii + 328 pages. Hardcover; $29.95. ISBN: 9780262048804.

Is it possible for a doctor to correctly diagnose a problem but fail to provide a useful cure? That is how I felt as I read this book.

The authors are respected scholars: two astrophysicists—one a Templeton Prize laureate—and the third a philosopher of science specializing in philosophy of mind. They correctly point out that all science begins with human experience, which spurs measurement and abstraction. For example, we experience hot and cold, we then learn to measure temperature, and eventually we develop abstract mathematical models of temperature in terms of molecular kinetic energy or partial derivatives of energy and entropy. We experience color, we then learn to measure wavelength, and eventually we develop a theory of quantum electrodynamics. The authors do not oppose measurement or abstraction; this is how science progresses.

What the authors decry is that the starting point—human experience—gets pushed out of the center of scientific thought and practice, relegated as something to be explained (or explained away) as epiphenomenal. Just as our retinas have a blind spot which we do not see but is essential for vision, so, they argue, we have been trained to ignore human experience when doing science, even though human experience lies at the heart of science and makes science possible.

In the first two chapters, the authors note the contributions of ancient Greek philosophy and Abrahamic religion in the development of science. They celebrate the successes of classical physics from Galileo through the end of the nineteenth century. They also claim that the triumphs of mathematical abstraction in classical physics led to a scientific worldview (that is what they really call it) that embraces the "Blind Spot" way of thinking. They list its main ideas (pp. 5–7): (1) Bifurcation of nature into what is subjective experience (e.g., color) versus what is objective and external (e.g., wavelength), (2) Reductionism—thinking of complex systems as fundamentally nothing but arrangements and interactions of their components, (3) Objectivism—believing that science provides an objective, "God's-eye view of reality," independent of any observation, (4) Physicalism—believing that everything that exists is completely physical, (5) Reification of mathematics—thinking of our mathematical models as if they are what is truly real, the ultimate truth of the universe, and (6) Human experience as epiphenomenal—treating conscious experience as something (or the illusion of something) to be explained by neuronal activity, but fundamentally no more real than, say, a glowing image on a computer screen.

The authors claim that the "Blind Spot" has produced a "crisis of meaning."

> On the one hand, science appears to make human life seem ultimately insignificant. The grand narratives of cosmology and evolution present us as a tiny contingent accident in a vast indifferent universe. On the other hand, science repeatedly shows us that our human situation is inescapable when we search for objective truth because we cannot step outside our human form … (p. viii)

Thus, the authors, like scientists of many religious beliefs, diagnose problems with an atheistic-reductionistic interpretation of science. What they offer as a cure is not a

theistic worldview that provides significance for humans and a place for the practice of science. Instead, they argue that a cure can be found through alternative atheistic worldviews, ones which focus on human experience at the center of science and other parts of life.

In chapters 3–8, the authors describe several scientific fields in which they believe the "Blind Spot" has led to scientific paradoxes and problems, slowing down scientific progress. Humans experience time as unidirectional. We learn to measure time with clocks. We then develop physics theories of particle interactions in which the mathematical abstraction of time is reversible. This seems to create a problem. Time's direction reappears in physics, not at the most abstract, microscopic reductionistic level, but by looking at the big picture of many particles, the growth of entropy, and the overall narrative of the universe that this produces. The "Blind Spot," by reductionism and reification of mathematics, points science away from some of time's most crucial features.

Humans experience interactions with a world of matter. In reductionistic theories of matter, human experience is taken out of the picture. But quantum theory, especially quantum measurements and the apparent "collapse of the wavefunction," currently has several competing philosophical interpretations. In contrast to the "Blind Spot" way of thinking, some of these interpretations put human experience back to playing a central role in explanations.

Humans experience a cosmos that appears to have a beginning. The "Blind Spot" way of thinking insists that science should encompass all objective truth, and it does not accept that our scientific theories are models with limits and boundaries. Unsatisfied with such limits, the "Blind Spot" catalyzes not only the creation but also the acceptance of a variety of multiverse theories which deny a beginning-in-time, at the cost of piling on many untestable assumptions.

Humans experience life and we experience cognition. Reductionism looks for explanations of life and cognition only in terms of how the tiniest pieces (cells, molecules, particles) are arranged and interact. In doing so, the "Blind Spot" misses the fundamental phenomena of living organisms as having autonomy and agency.

Humans experience consciousness as irreducible and fundamental to how we encounter the world. Physicalist thinking treats consciousness as an epiphenomenon whose apparent existence must be explained scientifically only in terms of brain activity. Yet consciousness has existential and cognitive primacy, prior to any scientific studies we do. Moreover, the knowledge we gain by doing science comes to us only via direct experience.

In chapter 9, the authors lay blame for the growing climate crisis on the "Blind Spot." While acknowledging that the growth of science is interwoven with history, economics, and politics, they argue that the "Blind Spot" manifests in all those areas by encouraging humanity to exploit the natural world. (Although, it could be noted, some neolithic cultures—centuries before modern science or economics—thoroughly harmed their local environments, while other cultures lived sustainably for centuries. The critical difference in those cases does not appear to be the "Blind Spot" identified by the authors.) To counteract these environmental harms, the authors encourage using the non-reductionistic tools of complex systems analysis that consider humans as part of the system.

The "Blind Spot" way of thinking, as the authors have identified it, does seem to be fairly common among scientists, and more generally among science-minded individuals. But have the authors identified a unified theme that is a source of paradox and crisis across multiple fields of science? Or have they instead identified a few fields of science which have ongoing controversies—each of which will be debated and resolved within its own field—and imposed a unifying meta-narrative of crisis that does not really explain each individual case? The authors believe the former, but by the end of chapter 9, I found myself thinking the latter.

This book might appeal to Christians who discuss philosophical and religious ideas with science-minded individuals whose worldviews tend toward physicalism and reductionism. The authors have usefully described the "Blind Spot," and some of the problems to which it contributes, in ways that might catch the attention of some non-religious scientists, because the authors' arguments do not come from theistic presuppositions.

The authors do not claim to have developed a comprehensive philosophical framework to replace the "Blind Spot." They call attention to it. They ask scientists and philosophers to work together to create a new framework for science—one which is still fundamentally non-theistic—but which no longer sidelines human experience and instead incorporates it as being primary in the generation of knowledge.

Have they offered a pathway to cure the "Blind Spot"? When I was a scientist-in-training at a Christian college, I was offered something different—a religious worldview in which science played an important role. To counteract objectivism and reification of mathematics, I was taught a critical-realist view in which scientists not only believe that there is a reality beyond their perceptions, but also humbly accept that their best theories are not objective truth but are human-created models which continually need improving. (The authors would not disagree with a critical-realist view of science, but their prescription focuses more attention on the centrality of human experience than on humility.) To counteract radical reductionism, physicalism, and treating human experience as epiphenomenon, I was taught that science is compatible with multiple religious worldviews, and compatible with Christianity in particular—a world-

view that admits multiple sources of knowledge besides science. To counteract some of the harms caused by treating the environment reductionistically as a mere resource, I was taught to think vocationally, with science as a useful tool for achieving some of the broader goals which my Christian worldview said were important. Based on my experience, I think this provides a more therapeutic prescription.

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CONSCIOUSNESS AND MATTER: Mind, Brain, and Cosmos in the Dialogue Between Science and Theology by Kirill Kopeikin and Alexei V. Nesteruk, eds. Pickwick, 2024. 262 pages. Paperback; $35.00. ISBN: 9781666776997.

This is a notable interdisciplinary volume that tackles the complex relationship between the mind and body, exploring it within the broader context of dialogue between science and theology. The collection draws heavily from Eastern Orthodox theological frameworks, using patristic language and thought to engage with the central theme of the mind-body problem. It aims to offer a theologically informed critique of materialistic naturalism and reductionism in the scientific study of consciousness while providing new avenues of thought by integrating theological perspectives. In this review, I will give a brief overview of all nine essays but, more importantly, I will focus on the unifying arguments across the volume and highlight the essays that offer the most significant contributions.

The book's contributors come from academic traditions centered in Eastern Europe, primarily Russia and Greece. Each author's expertise combines scientific, philosophical, and theological perspectives demonstrating impressive multidisciplinary competency and synthesis. While the perspectives vary, their common theological foundation, Eastern Christian thought, provides a cohesive thread. The editors successfully bring together essays that engage with the "hard problem of consciousness," challenging the adequacy of materialistic and reductionistic explanations of mental activity and offering both scientific and theological alternatives.

The essays are organized around two primary approaches to understanding consciousness: one that moves from the brain outward toward the cosmos, and another that begins with the phenomena of consciousness and works inward to the material. This dual structure, as outlined in the introduction, allows for an engagement with consciousness that respects both the microcosmic (individual brain activity) and macrocosmic (the relationship between consciousness and the cosmos) dimensions of human experience. Both approaches, however, are united in their rejection of materialist reductionism and their embrace of various forms of dualism—whether it be the classical Cartesian division of mind and body or theological distinctions such as creator and creation.

The first four chapters take a critical stance toward the reductionist paradigm of materialism. Tatyana Chernigovskaya's opening essay sets the tone by exposing the limitations of artificial intelligence and neural network models in accounting for the full scope of human subjectivity. Chernigovskaya argues that "meanings are more important than algorithms and structures" (pp. 5,7). In other words, the richness of human experience depends on the phenomenological and cannot be reduced to parallel physical processes alone. The critique of materialist reductionism is carried forward by Kiryanov in chapter 2, highlighting the unnecessary metaphysical assumptions that underlie much of contemporary science's dependence on ontological reductionism. Alexander Kaplan's contribution in chapter 3 continues this trajectory by exploring the way in which individual brain activity contributes to the creation of mental models that shape how a person inhabits the world. Each of these chapters points to the insufficiency of any approach that seeks to explain consciousness solely in terms of material phenomena.

A particularly innovative contribution comes from Kavokin in chapter 4, where he introduces quantum mechanics into the discussion of consciousness. Kavokin draws on the condensation of polaritons and the superfluidity of polariton condensates—where light-matter particles enter a unified quantum state, moving together without resistance like a frictionless liquid—to suggest that quantum states may influence the operations of human thought. He links this theory to biblical metaphors of light, proposing that the exciton-polariton model could offer insights into free will and determinism. However, while this quantum-based synthesis is imaginative, it risks overextending itself by drawing speculative theological conclusions from scientific data.

The second half of the book shifts toward a more cosmological approach, with chapters 5 through 9 examining consciousness in relation to the broader cosmos. Alexei Nesteruk's contribution stands out as particularly significant in this section. Nesteruk brings together cosmology, theology, and phenomenology to frame consciousness as a reflection of the universe's complex structure. Addressing the "hard problem," he bridges the dual nature of first-person subjective experience with third-person objective observation. Nesteruk uses patristic theological concepts like hypostasis (the unique, individual expression of a nature or essence in a distinct, relational form) to account for the interplay between the microcosmic and macrocosmic dimensions of the person, offering a profound theological and patristic reframing of the study of consciousness.

Kirill Kopeikin's essay in chapter 6 builds on Nesteruk's insights by integrating theological concepts, such as *creatio*

ex nihilo and *Theosis* (the divinization or transformative process of sharing the divine nature of the godhead), with quantum mechanics. Kopeikin argues that subjective knowledge, the very act of knowing, can alter reality itself, suggesting a panentheistic understanding of the world in which the divine is deeply intertwined with material existence. His theological engagement with quantum theory is one of the most explicit examples of Orthodox theology in the volume, drawing on the concept of the *Logos* to argue that consciousness and the cosmos are fundamentally interconnected.

Chapter 7 offers a brief but intriguing detour from the main thrust of the volume. Kobozev's exploration of the neglected work of chemist Sergey Krivovichev challenges methodological naturalism by offering a fresh voice from outside the usual academic authorities. This chapter adds diversity to the volume's interdisciplinary dialogue, though it remains somewhat disconnected from the broader theological concerns of the book.

The final chapters, including a lengthy essay by Walker Trimble, bring the conversation back to ethical and theological concerns. Trimble draws on an impressive array of classical, patristic, and modern sources to argue for a premodern understanding of the person as an agent shaped by the incarnational theology of the *Logos*. In doing so, he critiques Cartesian dualism and the metaphysical categories of modern philosophy, suggesting that a hypostatic model of human flourishing better accounts for the ethical and spiritual dimensions of human life. This final chapter offers a fitting conclusion to a volume that is deeply concerned with the ethical implications of its theological and scientific inquiry.

The volume is a wide-ranging and ambitious work that succeeds in placing Orthodox theology in dialogue with contemporary scientific debates about consciousness. The interdisciplinary nature of the volume is one of its greatest strengths, as it brings together insights from neuroscience, quantum mechanics, cosmology, and theology in a manner that is both rigorous and imaginative. The book's critique of materialistic reductionism is particularly valuable, as it highlights the limitations of purely scientific approaches to the study of consciousness and opens up new possibilities for theological engagement.

Nonetheless, the book is not without its limitations. The theological reflections, while often insightful, can at times feel speculative or overly reliant on scientific theories that are themselves still in development. The quantum-based approaches in particular run the risk of overextending theological claims based on emerging scientific data. Furthermore, while the volume brings together a diverse range of disciplines, it is less diverse in its theological perspectives, with most of the contributors adhering to a broadly dualistic framework. This can make the volume feel somewhat monolithic in its approach to the mind-body problem, despite its interdisciplinary aspirations.

Consciousness and Matter offers a rich and provocative contribution to the dialogue between science and theology. For those interested in the intersection of science and theology, particularly from an Eastern Orthodox perspective, this book is a significant and worthwhile contribution.

Reviewed by Allan Theobald (MA in biblical literature, MSc in philosophy of science), rector of Emmaus Anglican Church in Montreal, QC.

Physics

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ON THE ORIGIN OF TIME: Stephen Hawking's Final Theory by Thomas Hertog. Bantam Books, 2023. 313 pages. Hardcover; $28.99. ISBN: 9780593128442.

The two most vexing problems for naturalistic cosmologies are the beginning of time and the exquisite fine tuning of numerous physical parameters that make life possible. The late theoretical physicist and cosmologist Stephen Hawking, a professed atheist, wrote: "It would be very difficult to explain why the universe should have begun in just this way, except as the act of a God who intended to create beings like us."[1] *On the Origin of Time* is the culmination of Hawking's quest for a theory of everything that aims to explain the universe without reference to a transcendent deity. In language accessible to a scientifically educated reader, Hawking's close collaborator, theoretical physicist Thomas Hertog, charts Hawking's abstract journey toward a final theory by use of analogies and thought experiments. The reader unfamiliar with advanced mathematics will be grateful not to find pages filled with exotic calculations but, rather, an engaging science lesson enriched by personal anecdotes of a poignant friendship. Hawking's final theory is brilliant and, if true, would be quite elegant. There are reasons, however, to doubt whether his theory accurately models reality.

The first challenge for any naturalistic ultimate theory is the metaphysical implication of a beginning in time. Astronomical observations of the red shift of distant starlight provide strong evidence that the universe is expanding, and that the cosmic microwave background radiation confirms a beginning. Hawking's theory abolishes the notion of time zero by folding the first moment of time into a perpendicular dimension of space, as the indeterminacy principle renders time and space indistinguishable within the initial Planck interval. Hawking presents his "no boundary hypothesis" geometrically as a rounded (rather than pointed) origin on the time chart of the universe, and mathematically with equations written in imaginary time notation. His conclusion that the quantum fuzziness of time zero, rendering initial Planck time indistinguishable

from initial Planck scale, follows logically from Heisenberg's uncertainty principle.

Less convincing is Hawking's slide from mathematics into metaphysics, as he then reasons that the question of what preceded the universe is therefore meaningless. And yet, meaningful questions remain. Although he succeeds in arguing that the temporal beginning of the universe was quantifiably indistinct, his model overlooks the separate category of a discrete ontological beginning. His theory leaves unanswered what initiated the expansion and why there exists something rather than nothing.

The second challenge is to explain the precise specificity of the many physical constants and parameters that make possible galaxies, stars, planets, and living creatures. Hawking recognizes that if any one of these values had been even slightly different, life could not have appeared anywhere at any time in the history of the universe. Hertog writes that "the fundamental laws of physics appear to be specifically engineered to facilitate the emergence of life" (p. 9). Aware of its theological implications, he calls this anthropic principle "the most contentious issue in theoretical physics" (p. 28). Whereas many theists consider these finely tuned parameters of the cosmos to be compelling evidence for purposeful design by a transcendent intelligence, Hawking looks elsewhere for an explanation. His ambitious final theory rests on the claim that the laws of physics were not imprinted onto the universe from the beginning but emerged through a cosmic natural selection process.

In the journey toward Hawking's final theory, Hertog guides the reader through a breathtaking series of mathematical explorations of the history and concealed geometries of the universe. One suspects that the intricacies of quantum entanglement, gravitational time dilation, string theory, black hole entropy, and infinity paradoxes are just ordinary conversation for a genius such as Hawking. Putting it all together, he speculates that the universe is a hologram, and all that we experience is a projection arising from a hidden thin slice of spacetime (p. 212).

Hawking's answer to the anthropic principle may be summarized conceptually in the following way. If, as quantum mechanics predicts, every particle and packet of energy in the universe behaves as a quantum wave function, then the universe may be described as the complete set of quantum states that, when combined, compose a universal wave function. Furthermore, wave functions are defined mathematically by the Schrödinger equation as probability distributions that collapse into definite values or eigenstates only when an observer performs a measurement. Prior to a measurement, wave functions may be thought of in terms of Feynman's "sum-over-histories" scheme, by which a quantum system is described as a path integral containing all possible paths. Applying this mathematical approach to the physical parameters of the universe, then every specific physical constant, parameter, and event that might have been different can be thought of as a collapsed probabilistic wave function. For Hawking, what brings about this collapse of indeterminacy to specificity, such that the parameters of the universe happen to align in such a way as to be finely tuned for life, is the act of measurement.

Hawking envisions a series of such measurements in a natural selection process intrinsic to the universe. He posits a *retroactive* selection process for biofriendly parameters, a process performed by life that emerged billions of years after the big bang. For Hawking, whose mathematical finesse had erased zero from the cosmic timeline, such a time paradox was not an insurmountable challenge. Once life emerged, he reasoned, its existence and awareness of the universe somehow constituted a measurement or observation that caused all alternative hypothetical past histories to melt away. "This," wrote Hawking in an earlier volume, "leads to a radically different view of cosmology, and the relation between cause and effect … We create history by our observation, rather than history creating us."[2] Note that Hawking is not saying that the history of the universe can be understood only in retrospect; he is claiming that our observation of the universe has retroactive force. According to his theory, the existence of humanity and our measurement of the behavior of the universe, rather than God, are the creative influences that made it as it is and not otherwise.

Hawking supports his principle of retrocausality by appealing to the delayed-choice quantum experiment of John Wheeler. In this experiment, a photon passing through a series of two beam-splitters seems to "choose" its behavior after a change has been made in the detection apparatus. Wheeler himself rejected the inference of retrocausality but maintained, consistent with Hawking's perspective, that "no phenomenon is a phenomenon until—by observation, or some proper combination of theory and observation—it is an observed phenomenon." Further, "The universe does not 'exist, out there,' independent of all acts of observation. Instead, it is in some strange sense a participatory universe."[3] Thus, Hawking would have us believe that the finely tuned parameters of the universe, though they must have been what they are from its beginning for us to exist, are merely an artifact of our observation.

Holographic cosmology, explains Hertog, "envisions that physical reality isn't just made up of real things, like particles of matter and radiation or even the field of spacetime," but rather, mathematics "brings about physical reality" and even the laws of physics (pp. 244–45, 258). Holographic theory catapults cosmology into an abstract realm of elaborate speculation. It succeeds in dispelling theories of multiverses but at the expense of reducing reality to an artifact of mental abstraction.

The suggestion that we, as observers, create reality for ourselves is an exhilarating idea, but spectacular mathematics does not make it true. Hawking's hypothesis that the laws of physics originated from a natural selection process and "not in a structure of absolutes beyond it" (p. 258) overlooks the logical prerequisite that laws and mathematics to govern such a selection process would have had to originate from somewhere. His final theory, it turns out, is less than final, for it leads to a paradox of endless regress that fails to explain fine tuning but only defers the explanation to other levels.

Furthermore, Hawking's romance with subjectivism invalidates reason itself, including mathematics, on which his cosmology is based, for if physical brain events and their corresponding thoughts are nothing more than artifacts of our subjective observation, then there can be no basis for believing any theory to be a true model of the cosmos. The mathematics of quantum cosmology has not rendered the idea of God unnecessary. Rather, it leads to further questions, such as why quantitative mental models can effectively represent spacetime and make scientific predictions. Why is the universe humanly comprehensible?

Hertog writes that Hawking considered his final theory "to mark the end of my battles with God" (p. 208). Although his purpose in wrestling with God differed from that of Jacob, who sought God's blessing (Gen. 32:22–32), this reviewer wishes for God's blessing on Stephen Hawking and his colleagues, whose scholarship challenges us all to continue to pursue the challenging and ultimately meaningful questions about the universe and our place in it.

Notes

[1]Stephen W. Hawking, *A Brief History of Time: From the Big Bang to Black Holes* (Bantam Books, 1988), 127.

[2]Stephen W. Hawking and Leonard Mlodinow, *The Grand Design* (Bantam Books, 2010), 140.

[3]John Archibald Wheeler, "John Archibald Wheeler," in *The Tests of Time: Readings in the Development of Physical Theory*, ed. Lisa M. Dolling, Arthur F. Gianelli, and Glenn N. Statile (Princeton University Press, 2003), 490–91.

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Psychology/Neuroscience

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THE INTEGRATION JOURNEY: A Student's Guide to Faith, Culture, and Psychology by William B. Whitney and Carissa Dwiwardani. InterVarsity Press, 2024. 227 pages. Paperback; $30.00. ISBN: 9781514000564.

There is a plethora of books regarding the integration of Christianity and psychology. It is no wonder, then, that one could get either overwhelmed or frankly bored by the repetition of very similar ideas told in seemingly infinitely different ways. But I was pleasantly surprised by this work by Whitney and Dwiwardani. It contrasts with most earlier works on integration by extending the discussion beyond the theoretical and challenging the reader to consider the process of integration in a more dynamic and expansive way that emphasizes the vital role of cultural context. Though the authors neglect to mention a few others (e.g., David I. Smith[1]) who have likewise written about the integral role of culture for Christians' understanding of the world, this book is nevertheless engaging and challenging. It is also understandable despite discussions of the complex interplay between personal, cultural, spiritual, and emotional variables involved in the integration process. The authors intersperse biblical texts throughout the book in a way that flows smoothly with the discussion, treating the relevance of scripture in substantive ways rather than "forcing" a fit. Reflection exercises and questions in each chapter add interest and interactivity. This eight-chapter book is written for students, but I have no doubt that professionals from across different disciplines would also benefit from reading it.

The authors begin by clearly stating that the views they present are meant as a guide, not as a definitive work on integration. This is a refreshing demonstration of intellectual humility, and encouraged me to approach the book with a non-defensive stance. They also make no assumptions about the readers' knowledge of key terms, and thus briefly explain all relevant concepts before moving forward. Importantly, integration involves not only the obvious factors of Christian theology and psychology, but also culture. The interplay of these topics is the main focus of this work. The authors' challenge to the reader to consider the powerful role of one's own cultural identity in professional and everyday life is the most impactful aspect of this book. They note that this cultural self- and other-awareness is not only important, but is *required* of all believers if we seek to love others in our work and personal lives. This is one of the main reasons why I highly recommend this book.

Whitney and Dwiwardani then proceed to discuss how ideas of integration are embedded in the stories we have heard while growing up and those that we inhabit. They emphasize this point throughout the book by seamlessly interweaving their own stories where relevant. One main point is that these stories bias the ways we interpret the world, and thus considering them can help us challenge ourselves to broaden our understanding of the way our Christian faith interacts with our understanding of others and our approaches to integration. While respecting the multitude of stories represented by humans, the authors nevertheless emphasize that the ultimate narrative that should guide our approach to life is that of the Bible. This delicate balancing of respect for others' traditions alongside the universal mandates of scripture to love and seek justice for all is handled well throughout the book. As the authors note repeatedly, it is that love of Christ and others

that is the guiding principle for all of integration and life. By presenting the familiar Creation, Fall, Redemption, and New Creation/Restoration framework (chap. 3), the authors hold the tension between the brokenness of the human condition and the hope that exists in Christ to be agents of redemption and renewal in our lives. It is that grace, alongside our cooperation, that is key in our efforts to love others in our personal and professional lives.

In subsequent chapters, Whitney and Dwiwardani elaborate on the role of culture in integration by, for example, noting the oft-overlooked point that much of culture is "invisible" (chap. 4) and thus often overlooked or underestimated in its potential effect on our ideas and ways of interacting with the world. Further, our cultural identities and experiences are dynamic and flexible. One example of cultural influence is the assumption of dualism (body and mind) and inherent naturalism so prevalent in Western culture. It would have been helpful for the authors to also discuss the dualism of our cognitive and emotional capacities, and how the separation of these two is an artificial dichotomy characteristic of our culture.

The next chapter discusses the process of transformation when we go beyond mere intellectual knowledge to experiential knowledge. In keeping with their holistic view of humans, the authors emphasize the important role of our emotions in our deeper understanding of social realities. Emotions should not be underestimated or relegated to the role of "obstructing" our knowledge of truth; they are a gift from God that can draw us closer to truth, to one another, and to God.

In chapter 6, Whitney and Dwiwardani discuss "epistemic injustice" and "testimonial injustice." They challenge readers to consider their own biases in terms of whose stories and ways of understanding and integrating scripture with psychology we prioritize. As with the tone of the whole book, this is presented in an inviting manner, with grace and truth.

The following chapter discusses the vital role of lament in our ongoing journey of transformation and learning about integration. We need to be willing to see injustices, allow ourselves to feel the lament, and yet hold space for hope. We need to "learn to live in the liminal space of lament and restorative hope" (p. 184). As a minor critique, it would have been helpful for the authors to note the work of others (e.g., Soong-Chan Rah[2]) who also speak of a uniquely Christian lament in response to a broken world. The final chapter comes full circle, returning to the idea that practicing integration requires active participation; it cannot simply be accomplished by simply reading good works on integration. It is a process that involves our whole selves. In keeping with the authors' intellectual humility, the book does not end with any statement suggesting "now that you know all about integration after having read this book …" Instead, the authors remind readers to honestly explore their own stories and cultural embeddedness as they further develop their faith, love for others, and their own integration approaches. The only distracting part of this last section is a brief history of integration, which might have been better placed in the introductory chapter.

In sum, Whitney and Dwiwardani emphasize that crucial to the integration endeavor is the Christian's desire to live in accordance with the narrative of scripture, which calls us to love God and others. Their views regarding integration of faith, psychology, and life aptly hold the tension between respecting cultural differences and calling us all to aspire to live out the same narrative of scripture. It is a paradox well worth continuing to explore in the integration literature and beyond.

Notes

[1]David I. Smith, *Learning from the Stranger: Christian Faith and Cultural Diversity* (Eerdmans, 2009).

[2]Soong-Chan Rah, *Prophetic Lament: A Call for Justice in Troubled Times* (InterVarsity Press, 2015).

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Science and Faith

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GOD THE GEOMETER: How Science Supports Faith by Thomas J. McAvoy. Resource Publications, 2024. 180 pages. Paperback; $23.00. ISBN: 9798385208272.

Thomas McAvoy, a chemical engineering professor for nearly forty years, chose to pursue how science supports faith in the years following the tragic death of his first wife. This left him seeking answers to questions about how God interacts with us and allows suffering. His Roman Catholic faith influences his writing and gives it a distinct style, different from typical Protestant books on science and faith. I appreciate many of McAvoy's insights. However, his goal of demonstrating that science truly supports Christian beliefs is a bold, wide-scope endeavor that may not be persuasive to every reader, since this concise book briefly summarizes McAvoy's thoughts on a range of topics: the big bang, fine-tuning of the universe, the solar system, and evolution, with digressions on free will and quantum indeterminacy, natural and moral evil, and miracles.

One expression that McAvoy often uses is the "design imperative," something his engineering mind has latched onto in reference to the design of something to "perform a specified task (subject to certain solution constraints) optimally." He repeatedly uses this phrase in his discussions of modern scientific findings and theological views, arguing that God created a physical universe with apparent order and laws that allow for free will. In such a universe, natural evil and thus human suffering will be inevitable. McAvoy

is familiar with Harold Kushner's work, *When Bad Things Happen to Good People*, and he finds common ground with the Rabbi, who experienced deep suffering from his own son's disease. Both view God as not personally responsible for human suffering from natural evils since God created a world in which free will is possible and thus random and chance events will take place.

McAvoy takes the reader through exciting findings of modern cosmology, that is, the confirmation of the big bang. Studies of cosmic microwave background radiation allow us to infer the earliest moments of the universe, beginning in a hot, dense state, rapidly expanding and cooling to yield a cosmos in which star and planet formation could take place only if many factors were finely tuned. Appealing to a multiverse to explain the fine-tuning is not very convincing to McAvoy, who claims that "God's design imperative" is a better explanation. In other words, he sees Christian belief in a Creator God aligning much better with scientific findings than appealing to numerous undetectable universes.

The most interesting part of the book for me is the discussion of biological evolution. It is obvious that McAvoy is well read in this area. He begins by critiquing Harvard paleontologist Stephen Gould's claim that if the history of evolution could be re-run, it would most likely not result in intelligent life. McAvoy is strongly persuaded by biologist Simon Conway Morris's arguments of convergent evolution. Morris holds that evolution is a process that leads inevitably to certain features, including intelligent life. McAvoy rejects Daniel Dennett's claim that evolution is a purposeless algorithm. Amazingly, he finds himself in agreement with Richard Dawkins on the claim that moral altruism arises naturally out of the evolutionary process. Unsurprisingly, he finds much in common with Michael Ruse, author of *Can a Darwinian Be a Christian?*, and who is quite critical of Dawkins's narrow views of Christianity. McAvoy's engineering mind leads him to emphasize that there are tradeoffs in a universe that allow free will, and one of those will be natural evil or human suffering. This is part of the "design imperative" view he emphasizes. For him, biological evolution fits neatly into this view.

McAvoy digresses to discuss intelligent design (ID), focusing on two competing authors: Michael Behe and Kenneth Miller. Behe is one of the best-known proponents of ID and has used the concept of irreducible complexity to argue in favor of design. Miller is a well-known proponent of theistic evolution and a critic of Behe. McAvoy finds Miller far more compelling and in alignment with his own views. He focuses on the example of blood clotting as an extremely complicated biological process that appears to be irreducibly complex. Yet Miller uses the work of molecular biologist Russell Doolittle to show how it could have evolved. Furthermore, the presence of pseudogenes in our DNA supports an evolutionary scenario and makes ID an unsatisfactory approach. McAvoy concludes that ID is not a valid science.

He then discusses how God intervenes in this world, often in ways that involve spiritual matters and rarely by overriding natural laws in the form of miracles. McAvoy claims that the latter must be rare for us to truly be creatures that have free will. He argues that if God often performed miracles, we would depend on those instead of accepting a natural world governed by physical laws and principles. His digression on free will and quantum indeterminacy is meant to establish how determinism is not possible in this universe. The fact that the microscopic realm is governed by probabilistic rules, rather than deterministic ones, allows for nondetermined outcomes, and thus allows for free will and limits how God interacts in the world. This argument is a bit unsatisfying to me, since it does not consider the role of our minds and consciousness, which still defy adequate scientific explanation. Nor does it allow for God interacting in other ways that we cannot understand. McAvoy is not a deist, but he does appear to limit how God works in this world.

I also found that the final two chapters on miracles diminish the thrust of the book, rather than add to it. While McAvoy wants to show that there is scientific evidence to support miracles having taken place, his choices of the Shroud of Turin, Our Lady of Guadalupe, Eucharistic miracles, and others reveal his deeply Catholic perspective and give a parochial twist in the book. I can appreciate that miracles have indeed occurred, because I am already a Christian who believes in miracles. But I doubt that skeptics will be impressed by the chapters on miracles. Most Christians believe that the greatest miracle is the Resurrection and our resulting salvation through faith in Christ. The author may agree, but that gets lost in his focus on other matters. McAvoy concludes by emphasizing once again the "design imperative" and how all the scientific evidence presented affirms it. God is the grand Geometer who designed this universe and science affirms faith in him. Overall, I recommend the book as a worthwhile read for anyone interested in science and faith and particularly in the topic of human suffering.

Note

[1]Joseph Shigley et al., *Mechanical Engineering Design, 7th ed.* (McGraw Hill, 2004), 5.

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THE ROAD TO WISDOM: On Truth, Science, Faith, and Trust by Francis S. Collins. Little, Brown and Company, 2024. 288 pages. Hardcover; $27.00. ISBN: 9780316576307.

Even though Francis Collins has a PhD in physical chemistry from Yale University, an MD from the University

of North Carolina at Chapel Hill, was the director of the Human Genome Project, and served as the director of the National Institutes of Health for 12 years under three presidents, to anyone who knows him, he is just "Francis." Approachable and humble, Collins is an active member of the American Scientific Affiliation.

While serving in these influential roles, Collins made time to speak and write widely. His 2006 book *The Language of God: A Scientist Presents Evidence for Belief* received widespread acclaim and thrust him into the public as a foremost spokesperson for the compatibility of Christian faith and science. It also coincided with his founding of the BioLogos Foundation in 2007. His winsome personality and understated intellect disarm critics and engage listeners and readers. But the COVID-19 pandemic challenged and tested Collins in new ways, beyond the resistance he had met previously as a leading scientist and Christian believer. This elevated Collins's concern about the need for wisdom in these unique times. *The Road to Wisdom* is his response and guidance for how to live as a thoughtful Christian in today's contentious world.

In this book, Collins develops an argument that political discourse in the USA has become divisive and has abandoned wisdom. In his estimation, the road to wisdom requires four goods: truth, science, faith, and trust. One might add other goods to these, but Collins makes a good case for how important these four are.

First, Collins makes the case that scientific and spiritual truth are available to all who are willing to pursue it humbly and earnestly. To illustrate this, he uses the metaphor of a spider web of truth to illustrate varying degrees of confidence. The strongest and most tightly woven threads in a spider web are at the center and lessen in strength as they widen and move outward. Similarly, we hold different levels of truth with different levels of confidence. The spider web moves from necessary truth in the center (2+2=4), then outward to firmly established facts (the earth is round), uncertainty (dark matter), and finally to opinion (dogs make better pets than cats). This typology of levels of certainty in what we consider true is a helpful framework for guiding discussions on complex topics. This section brought to light for me the different views Christians have about the role of extra-biblical information in determining truth. Collins has opened an important topic that invites further exploration.

Second, Collins defends science as a time-tested and powerful method for separating truth from falsehood. He expresses significant dismay at the level of distrust in science that has emerged in the USA in recent years, given the degree to which science benefits every person's life every day. Collins gives examples of mistakes scientists, including himself, have made, but he maintains that the peer-review process of the scientific community is able to guide the work of science appropriately. This chapter becomes quite personal, as Collins defends his response to the COVID-19 pandemic, while acknowledging his own errors. As an epidemiologist who was active in mitigation measures during the pandemic, I shared Collins's angst about how things unfolded. Critics might find him to be somewhat defensive; I found his argument compelling.

Third, Collins makes the case that faith is necessary for wisdom. Faith can illuminate vital transcendent truths. In this chapter, Collins freshens up views he has previously developed in his other books: *The Language of God* (2006); *The Language of Life: DNA and the Revolution in Personalized Medicine* (2010); *Belief: Readings on the Reason for Faith* (2010); and, with coauthor Karl W. Giberson, *The Language of Science and Faith: Straight Answers to Genuine Questions* (2011). From the section beginning with "What do atheists think of all this?" to the end of the chapter, Collins considers issues such as doubt, uncertainty, and the opportunity for a renewal of confidence in the veracity of authentic Christian faith. He is cautiously hopeful that a renewal of Christian faith is possible.

Finally, Collins explains that trust must be earned. This is done by showing others that you recognize the preeminence of truth, while humbly acknowledging your own limitations. Collins describes the four elements that he believes create trust: integrity, competence, humility, and aligned values. Some readers might find Collins to be defensive of the actions taken by himself and Dr. Anthony Fauci during the COVID-19 pandemic, but I found his explanation to be persuasive. Beyond COVID-19, other examples of how science has successfully answered scientific questions, and thus built trust in the scientific method, are particularly helpful in this book.

One question that remains vexing is how to handle disagreements based on fundamentally different views of how we know what we know. Collins's noble goal is that if we respect each other, and listen, we can lessen the acrimony and build understanding. But some people are holding tightly to dangerous views that are built on non-truths—e.g., that the risks of some vaccines outweigh their benefits, or that climate change is a hoax. This book is a good start to address the problem of deeply held disagreements, but there is much work to be done.

The Road to Wisdom will appeal to most readers of this journal. It is written at a level that does not need advanced knowledge of science or theology. I studied this book in a small group; this approach enhanced its value and increased comprehension. Incidentally, the high-quality illustrations included in the book were created by Collins's granddaughter. This book is another excellent contribution by Francis Collins, and it comes at a very important time.

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Theology

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CUCKOOS IN OUR NEST: Truth and Lies About Being Human by Iain Provan. Cascade Books, 2023. 258 pages. Paperback; $27.00. ISBN: 9781666768701.

According to Provan, retired professor of biblical studies at Regent College, Vancouver, today's most pressing question for Christians is "What is a human being?" He is particularly concerned about contemporary unbiblical responses to this question that have compromised our views. Like the cuckoo (a parasite and an assassin), that sneaks its egg into the nest of another bird that then raises the chicks, these concepts have infiltrated our faith communities. Christians need to be aware of these "cuckoos" and to reflect seriously on what it means to be human.

Provan addresses this problem in fifty short accessible chapters, and offers study guide questions on his website "The Cuckoos Consultancy." His audience is primarily Bible-believing Christians; for more-academic treatments of the topic, he refers readers to his previous books, especially *Seeking What Is Right* (2020), *Seriously Dangerous Religion* (2014), and *Convenient Myths* (2013). As a lecturer on theological anthropology, I did not find anything startlingly new in *Cuckoos in our Nest*, or anything I strongly disagreed with. However, Provan does offer a fresh framing of concerns for the contemporary church and much information for those not familiar with the situations and questions.

The first section of the book, "Finding Out," addresses how we can acquire reliable knowledge about the human person. In a world of dis- and misinformation, finding truth is challenging. Provan respects the process and products of science while acknowledging its imperfections. He notes the need to trust experts and to practice humility; both are uncommon in our world today. The critical question is "Whom shall I admit to my circle of trust, and why?" (p. 12).

The second section is a summary of Christian "Fundamentals" that sets the stage for later arguments. Provan tackles fourteen diverse topics in chapters ranging from "In the Beginning," "Animated Bodies," and "Whole Persons," to "Saved," "Hopeful," and "Confessing." He relies much on creation narratives, with a notable emphasis on embodiment. As bearers of the divine image, humans are whole beings, personal and material—"divinely animated matter" (p. 43)—having great value, dignity and beauty. We are called to be rulers and priests over creation, caring for and developing it. We are also called to be in relationship with God—faith involving more than just belief but total trust, love and obedience, right thinking, and right living. And we are called to live in community with our neighbors, caring for them. Provan is clear that the created order affirms the sanctity of life, gender binaries, and the rightful place of sexual intimacy within marriage—a covenant bond between man and woman. In dealing with our fallenness, he interprets idolatry broadly, noting that worship of self is common. He insists that we need to "embrace Christian truth *as a whole*" and "embrace it *as whole persons*" (p. 84).

In the third section, "Furthermore," Provan examines some implications of the Christian view he outlined in Part 2, including fifteen diverse areas of life in chapters such as "Worship," "Rights," "Life," "Death," "Gender," "Children," "Church," "Work," "Creation Care," and "Politics." As embodied beings, we worship with our whole selves and lives, reciting Christian doctrine through singing and meeting together in person. Churches need to practice hospitality but with clear boundaries based on sound doctrine. Being made in God's image, all persons have the right to life, a gift that begins in the womb, does not depend on capacities, and can only be taken away by God. Our bodies are temples of the Holy Spirit so their form should not be arbitrarily changed.

As per the creation mandate, work encompasses all areas of life, including care for creation and political engagement, and is done for the purpose of glorifying God. This may lead to material gains, which are not unbiblical, but wealth should be distributed wisely. With respect to loving one another, biblical love is not sentimental but enables us to "see things as they actually are" (p. 138) and act accordingly. Having compassion on others involves seeing them as image bearers rather than as helpless victims. As priests over creation, we are called to understand our fallen cultures while "very deliberately and counter-culturally" working out "the implications of our Christian anthropology in our lives" (p. 147).

Provan gets to the crux of his argument in the fourth part of the book, titled "Foreign Bodies" (chapters 36 to 50), that names the "cuckoos." These often follow contemporary ideologies that are rooted in traditional philosophies, are incompatible with the biblical story, and are often incomplete and incoherent. Some relate to the acquisition of knowledge; others offer competing "religions." For example, the Science Cuckoo (scientism) claims that science explains everything. The Look Inside Yourself Cuckoo, that follows notions from Romanticism, idealizes nature and encourages people to rely solely on gut feelings. The Freedom to Choose Cuckoo, following Nietzsche and others, emphasizes individualism. Ironically, many people demand their freedom but object to that of others when it affects them. Provan also points out much confusion in contemporary culture; for example, people may follow science for some things but favor feelings or choice when they don't like the science.

The God Cuckoo refers to deism, now popular as moralistic therapeutic deism, a religion that offers only comfort and convenience. The Platonic Cuckoo follows Gnosticism

in devaluing the material (thus sometimes coexisting with Romanticism and individualism). The Innocence Cuckoo, also influenced by Romanticism, looks back to a state of precivilizational bliss (in fact, ancient cultures were often violent and did not live in harmony with their environment); we are all basically good and can trust our feelings. The Information Cuckoo values narrow and practical education only, devaluing wisdom. Provan insists that good education has a strong social component and, therefore, should never be virtual.

Closer to home, the Worship Cuckoo distorts church liturgies. There is minimal scriptural content in sermons and songs, and singing is more of a concert than a communal activity: "one finds oneself singing, more than once, a composition that did not have very much to say to begin with" (p.196). The Justice Cuckoo, sometimes emphasizing individual rights, sometimes nature, sometimes utilitarianism, flounders because it has no grounding. Similarly, the Revolution Cuckoo overvalues social justice and group identity, and neglects individual responsibility.

Provan is creative and overall concurs with much broadly conservative thinking on contemporary disagreements. At times he is a bit dogmatic and too general; I would prefer a more nuanced approach with further detail and illustrations. For example, what does "unbiblical" mean? What happens when individual rights to life are in conflict? Should children obey abusive parents? I was also disappointed that a biblical scholar seldom addressed the complexities of interpretation. Provan also paid little attention to spiritual experience, common to contemplative and charismatic streams of Christianity. To be fair, he acknowledges the downside of short chapters; however, I wonder if he simply tried to include too much, sacrificing depth for breadth.

Nevertheless, *Cuckoos in Our Nest* offers an excellent introduction and overview of important questions that all Christians need to contemplate. I recommend it to those unfamiliar with or overwhelmed by contemporary cultural problems; it is also a good resource for students and Bible-study groups.

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THE PROBLEM OF ANIMAL PAIN by Victoria Campbell, Elements in the Problems of God Series, Michael L. Peterson, ed. Cambridge University Press, 2023. 77 pages including bibliography. Paperback; $20.00. ISBN: 9781009270670.

In an era when the pet population surpasses the number of human children in some major cities, a renewed interest has been sparked in the relationship between the pain and suffering faced by animals and Christian theology. In the latest of the Cambridge "Elements in the Problems of God" series, Victoria Campbell, with doctorates in chemistry and theology and ordained by the Global Methodist Church, tackles the issue of animal pain through theological and scientific lenses. Recent years have seen excellent book-length treatments from philosophers and theologians, but few science-focused works. This very short contribution (only 63 pages) provides brief, often bullet-pointed, summaries of the problem of animal pain and of some responses, as well as providing her novel thesis, one based on the neurophysiology and ethology of natural pain mitigation.

As most philosophers and theologians who engage animal pain and suffering do, Campbell opens with William Rowe's classic argument from 1979 "against the existence of an omnipotent, omniscient, wholly good God" (p. 2) based on the idea of profound suffering in nature over billions of years of evolutionary history. If God exists and can prevent widespread and unnecessary suffering among created beings that are not themselves moral agents, why does he not do it?

Nearly all the major theistic responses to this question are summarized and evaluated, quite succinctly and (mostly) effectively. Campbell outright rejects the Neo-Cartesian premise that animals cannot feel pain; there is too much scientific proof that they can. She finds other arguments have their merits but are still insufficient, including "corruption of creation theodicies" (p. 15), in which prehuman, demonic forces caused primordial chaos, and those theodicies addressing animal afterlife or "saint-making theodicies" (p. 20), in which suffering is redeemed in an animal afterlife. Additionally, the author's treatment of chaos theory and kenosis is somewhat limited compared to recent scholarship, but her take on the strengths and weaknesses of arguments based on these ideas seems reasonable, at least as she frames them.

The crux of Campbell's theodicy seeks to affirm that animal pain exists, that an omnipotent and omniscient God also exists and is responsible for its presence, and that God is concerned for animals and cares lovingly for all creatures. Much of her argument is predicated on our knowledge of pain perception, particularly in vertebrates, the value of pain for survival and healthy longevity, and how natural means of pain mitigation reflect a loving, benevolent God. Campbell refutes arguments posed by Richard Dawkins and others that untold pain has plagued evolutionary history with incalculable cruelty, with her contention that about 99.5% of all species "will never experience the emotional distress associated with suffering" and "lack the physiological capacity to perceive pain" (p. 38).

Additionally, the author finds predation to be a means in nature to provide healthy ecosystems and to mitigate chronic pain or illness in animals. It is often the weak, injured, and infirm that are hunted, and the relatively quick death of prey species is mitigated by release of catecholamines and opioids that provide a sort of natural

anesthetic. Other troublesome issues, such as predatory behaviors of "killer" orcas and avian siblicide, are also addressed, with similar ideas that the benevolence of a creator God is expressed when a deeper scientific understanding of these processes is engaged.

In terms of critiques, the assertion that species apart from mammals and birds cannot feel pain will certainly be disputed by some; the difference between pain and suffering is never addressed, in that the terms seem to be used interchangeably throughout the book; and suffering is never explicitly defined. Though it adds valuable information to the discussion, this book is certainly not a comprehensive treatise on animal pain and suffering. Not all natural suffering experienced by animals is addressed. As a veterinarian who must contend with pain, disease and suffering in my patients, and who often serves a quasi-pastoral role in the corresponding anguish and doubts it creates in their human companions, I find that too many unanswered questions remain in this book. Excellent though the scientific answers are, a fully developed theodicy it is not; theological challenges remain that bring readers to face some of the same mysteries that Job ultimately embraced.

Nevertheless, this book is a worthwhile contribution to the literature on the problem of animal pain and is particularly useful to scientists who seek to make apologetic arguments based on empirical evidence. It expresses the power, wisdom, and goodness of God through revelations in biological science. Academics and lay readers alike will find the text highly engaging, and its brevity refreshing. *The Problem of Animal Pain* is highly recommended as an excellent, if partial, addition to what will continue to be a more robust conversation. A terrific bibliography offers many opportunities to explore the topic further. While not entirely sufficient as a stand-alone theodicy for animal pain and suffering, it is a buttress to a wider theistic response, and one that provides a much-needed, scientifically and biblically solid, voice.

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ASTROBIOLOGY AND CHRISTIAN DOCTRINE: Exploring the Implications of Life in the Universe by Andrew Davison. Cambridge University Press, 2023. 406 pages. Paperback; $27.99. ISBN: 9781009303163.

From my experience in speaking to groups on science and Christianity, whenever I suggest that Christian faith needs to allow for the possibility that intelligent, agape-capable beings could possibly emerge not just on Earth but elsewhere in the universe, the conversation inevitably produces several related questions, such as whether Jesus's atoning work on Earth would apply to such beings elsewhere in the universe, or whether God would become incarnate elsewhere in the cosmos. Often participants convey a tone that such questions are hopelessly big for us, that the topic may be momentarily interesting but ultimately overwhelming and futile. There are also those who offer confident commentary denying that any such life could possibly exist elsewhere other than Earth.

It is into precisely these sorts of expansive questions that Andrew Davison—recently appointed Regius Professor of Divinity at Oxford—takes us with this marvelous volume. While the person in the pew may feel theologically at sea with such questions, Davison models the professional theologian taking on a challenging question, to offer the church a set of constructive responses that cohere with both current science and historic Christian faith (or, more precisely, doctrine).

With a hundred billion stars in just the Milky Way alone, the universe possesses "an astonishing number of potential cradles for life, and that, to my mind, changes everything" (p. 5)—a potential that includes not just biotic life but also *intelligent* life. Yet even without our current knowledge of cosmology, theologians have been writing about the possibility of "other worlds" (beyond Earth) since the thirteenth century and writing about "the theological implications of biological life beyond Earth" since the mid-fifteenth century (p. 7). Other worlds and intelligent life beyond Earth have not been central topics of theology over the centuries; however, Davison does a superb job of unearthing the many theological discussions that have taken place, both past and recent.

Davison's interest, though, is not merely historical but also constructive. "One motivation for a book such as this is to help the human community (and specifically, the Christian community) to be more ready to receive, process, and respond to any future signs of life elsewhere. Detection might come in a decade, centuries hence, or perhaps never, but if it does, it will be useful to have thought through the implications in advance" (p. 11). He holds a second motive: "after a journey—physical or intellectual—in unfamiliar territory, one can return home with fresh eyes … [O]ur theology can find useful provocation, even invigoration, by having life beyond our planet in mind … [A]spects of Christian faith shine in new ways once placed in a different light" (pp. 11–12).

Davison's method is to discuss the implications of life elsewhere in the universe for a range of Christian doctrines. For instance, do we have theological reason to believe there might be life elsewhere? Certainly, for "The cosmos is for life … the cosmos is for the communication and display of divine excellences (among which life is particularly significant). That, in turn, is seen to entail (or at least suggest) multiplicity and diversity, and therefore to undergird an expectation that life would be widespread and, perhaps, diversely realized" (p. 82). For Thomas Aquinas, multiplicity, or "the numerical plurality of things," is second only to

revealing "divine goodness" as the "summit of the divine plan for creation" (p. 84).

The range of questions that now follow is wide, and here I can give only a flavor of these. How would species elsewhere in the universe have knowledge of God or be able to speak of God? This is an important question because knowledge and language are always mediated contextually and through particular evolved neural faculties—and such faculties will have evolved very differently elsewhere across the universe. Consequently, what is the source of "continuity between how very different species [in different locations in the universe] might understand God as threefold?" (p. 115). The source would have to be revelation (rather than local versions of natural theology). "[T]he one God, boundless and creative, would be known [through divine self-revelation] in different but not incommensurate ways by different creatures … refracted and accommodated to their own distinct way of knowing" (p. 133).

Likewise with language for the Trinity. Creatures elsewhere would have their equivalent language for what we call "personhood," to reflect the three persons of the Trinity, particularly in the sense of generative relations (such as the Son being "eternally begotten"). Thus, creatures elsewhere would have language that reflects qualities of personhood as related to "generation, coming forth, and gift" in their form of creatureliness, and thereby be able to use these equivalents to speak of the persons of Trinity.

Would other creatures bear the image of God? There is no scriptural reason to think not. Beings elsewhere in the universe could converge on image-of-God qualities such as intelligence, memory, will, and morality, even though possessing these in local biological, morphological, and cultural forms. "What God gives freely on Earth, God may also give freely elsewhere … [T]he image of God is a finite reflection of boundless divine perfection … [which] suggests that the image need not be one thing only, or identical wherever it is found" (p. 165).

Do beings elsewhere also sin? Presumably at least some do—but if so, then does Jesus's atonement on Earth suffice for other beings elsewhere, or would God take on multiple incarnations for atonement everywhere intelligent life occurs? Over the past several centuries, arguments have been made both for and against—"theologians can argue the matter in good faith either way" (p. 225).

In the end, Davison leans toward incarnation anywhere in the universe where there are creatures bearing God's image. Davison recognizes that this is contentious: "We find no greater point of divergence in thinking about the theological implications of life elsewhere in the universe than over this idea of multiple Incarnations" (p. 192). The disagreement arises because "For some this idea appears … a denial of … the centrality of Christ [Jesus of Nazareth] to the whole cosmos" (p. 192). Davison agrees that one incarnation in one location of the universe could indeed atone for all beings throughout the universe. Nonetheless, he also argues that it would be "fitting" for God to take on multiple incarnations because remediation (atonement) is not the only reason for incarnation. For incarnation also provides other gifts of God's grace, including "to receive the highest dignity conferred by God" (by God's incarnational presence), receiving the deepest divine self-revelation (necessarily in person), and *theosis* (being spiritually united with God, in friendship with God) (p. 193). Davison also contends there could be non-sinful beings elsewhere in the universe, and these non-atonement reasons for incarnation would also apply in their cases.

Davison explores other questions, including the following: Would multiple incarnations all experience resurrection and ascension, and thus meet each other in heaven? Given that other image-bearing beings could emerge across the universe over vastly different time scales, and given that the New Creation is understood doctrinally to be cosmos-wide, then what are the implications for God's timing for the eschaton? And in the New Creation, how will different creatures relate to each other?

This volume is a marvelous tour of the craft of theology as it intersects with science, with the author deploying a rich range of theological resources. While he is among those science theologians today with a particular allegiance to Aquinas, nonetheless he employs resources from Patristics though the Scholastics, from the Reformers to contemporary theologians—Protestant, Catholic, and Orthodox alike.

My one significant quibble is with his Aristotelian assumption of intelligence as the primary human property. This assumption remains widespread even in secular circles today; it is illustrated, for instance, by SETI—the search for extra-terrestrial intelligence. But as I have previously argued, while consciousness and intelligence are clearly divine qualities, *agape*-love is more fundamental to the nature of God; thus, for Christians, the holy grail of astrobiology should be the discovery, not of intelligent life (as exciting as this would be), but rather the discovery of *agape*-capable life—beings capable of loving both fellow beings and God.

Regardless, I enjoyed this book immensely and recommend it highly. Scientists wanting to write on topics in science-and-theology would do well to understand the theological trade through this volume. More importantly, Christians should not worry about life being found elsewhere in the universe—indeed, such discovery would only reveal further the glory of God.

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