



HEALTH AND MEDICINE

CHASING METHUSELAH: Theology, the Body, and Slowing Human Aging by Todd T. W. Daly. Eugene, OR: Cascade Books, 2021. 307 pages, index. Paperback; \$38.00. ISBN: 9781532698002.

Chasing Methuselah brings “a Christological anthropology to bear on the scientific quest to attenuate aging by manipulating the body” (p. xi). Todd T. W. Daly, who teaches at Urbana Theological Seminary, argues that faith-based lenses are integrally important for interpreting historically diverse, and mostly failed, efforts to slow human aging—an elusive goal typically pursued by biomedical professionals, technocrats, and quacks. “The idea of a significantly prolonged healthy life has captured the public’s imagination,” Daly states in his Introduction, but “to date, the ethics of aging attenuation contains assumptions that often go unchallenged, leaving fundamental questions unasked” (p. 11).

With bold originality and astounding erudition *Chasing Methuselah* fills a major gap in critical gerontology by highlighting ethical foundations and existential dilemmas that scientists and commentators have generally ignored while attempting to alter bodily homeostasis and manipulate basic processes. Blazing a *terra incognita* full of unfamiliar names and references, *Chasing Methuselah* poses questions that reframe a fundamental debate: Should healthful longevity be extended by trying to cure age-related diseases or by slowing the rate of aging? In his critique of this “two endings [that] speak of two disparate paths of old age” framework, Daly pushes gerontology’s limits beyond what most researchers, teachers, and practitioners (regardless of their specialization) regard as its transdisciplinary, cross-professional domain.

Chasing Methuselah has five richly nuanced, assiduously researched chapters. Chapter 1 alone is 58 pages long with 284 footnotes. It traces “the quest for longevity [that] has moved from legend to laboratory,” thereby engendering “new hope that human aging might be brought under human control” (p. 76). Daly’s second chapter chronicles how certain Christian texts and doctrines have bolstered two conflicting perspectives—specifically, a secular contention that “prolonging life is unequivocally good”

and an “unequivocal foreclos[ing of] all attempts to secure a longer life by slowing aging” (p. 112).

Chapter 3 examines the legacy of Francis Bacon (1561–1626). Its title, “Relief of Man’s Estate: Francis Bacon and the Theological Origins of the Modern Quest to Slow Aging,” pivots the book to a contrapuntal, interpretive turn wherein technological and theological pathways toward greater longevity have complemented, paralleled, or contradicted themselves for centuries. On the one hand, Daly affirms that Bacon birthed biomedical science as an indispensable approach to practical knowledge about old age and aging. On the other hand, Daly quotes Bacon’s objections to the project: “Natural philosophy [the study of nature] should not be invaded by revealed theology in the Bible,” declared Bacon, “but rather be bounded by it” (p. 148).

The last two chapters of *Chasing Methuselah*’s narrative invite laboratory scientists, policy analysts, and healthcare professionals to grapple with theodicy and eschatology—subjects usually taught in seminaries, not showcased in conferences on aging. Chapter 4, entitled “Adam Again,” reveals the typically unacknowledged importance of theology in reflecting and refracting scientific views on slowing bodily aging. Ascetics tried to attenuate aging to reframe Adam’s Fall in Genesis. For the Desert Fathers,

Bodily practices such as fasting were viewed as the primary means by which the Christian might regain a measure of what was lost by Adam’s sin, namely, a heightened degree of bodily incorruptibility allowing for the possibility of longer life. (p. 199)

Chapter 5, “The Last Adam and Slowing Aging,” builds upon the connection between asceticism, fasting, and prolongation of life espoused by Saints Anthony, Athanasius, and other Desert Fathers. This chapter also considers the work of the Swiss theologian Karl Barth in particular, employing Barth’s “dynamic anthropology” or “dialectical-dialogical anthropology” for framing “christologically informed discussions on the relationship between one’s body and soul as it relates to slowing aging” (p. 206). By taking on “finite humanity as embodied soul and ensouled body” (p. 253), the incarnation affects our perspective on lengthening life: “In light of the real man Jesus, any use of biotechnology ... is

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not without risk, as it may threaten our pursuit of the proper order to body and soul” (pp. 253–54).

Reading *Chasing Methuselah* can be daunting. I had to Google many references, and readers without theological training may well find the discussion of Barth difficult to comprehend. I associated Daly’s *modus operandi* with “thick description” – Clifford Geertz’s method of doing cultural anthropology. This approach gathers biographical details, historical milieus, and societal belief systems to contextualize actors’ symbols, legends, and rituals, thereby explicating individual worldviews and collective behaviors. Geertz (omitted in the 34-page bibliography) used reams of data to synthesize and interpret what he observed being enacted ethnographically.

Daly, in contrast, offers a “conclusion” to each chapter, but rejects narrative foreclosure. To wit: The last sentence of *Chasing Methuselah*’s four-page Conclusion, which begins “Perhaps the best question is whether the use of such biotechnology will help or hinder our pursuit of Jesus” (p. 258), requires readers to formulate their own answer to what Daly implicitly articulates. This tack leaves loose ends unresolved – perhaps frustrating for scientists accustomed to explicit, straightforward conclusions. That Daly chose not to bridge two specific cultures (humanities and science) diminishes his argument’s impact. Reviewing this as an historian of aging, a religious/spiritual believer, and a critical gerontologist, I opt for more transparency.

I commend Daly for invoking Tom Cole and Gerald Gruman, whose histories of science, theology, and myth orchestrated early parts of *Chasing Methuselah*. I am dismayed, however, that the book does not sufficiently acknowledge two fierce competitions raging for decades: (1) turf wars over intramural status and extramural authority within the Gerontological Society of America (GSA); and (2) ideological and methodological rivalries that have pitted GSA advocates against experts in the American Academy of Anti-Aging Medicine (4AM).

For example, the pro-longevity claims made by David Sinclair and Valter Longo, 4AM stalwarts whom Daly frequently cites, are important and pertinent. Nonetheless, their research does not enclose the vast array of theories advanced and debunked by specialists and emerging professionals within GSA.

That strand of historical gerontology was evident in the early twentieth-century pathological model of aging (articulated by Elie Metchnikoff) and its physiological counterpart (presented by I. L. Nascher, the father of US cross-disciplinary geriatrics). Similarly, Daly’s historiography could have paid more attention to Clive McCay’s caloric-reduction experiments (replicated persistently for 90 years) and to Roy Walford’s fasting regimen in Biosphere 2.

This Episcopalian wanted more exegesis in *Chasing Methuselah*. How do women’s opinions about slowing human aging compare with those of male theologians and mystics? Doesn’t Daniel Callahan merit more than a footnote citing his claim that “‘national necessity’ [is] another way of saying ‘research imperative’” (p. 12)? Might assessments of non-Christian or agnostic ethicists have sharpened Daly’s focus on a faith-based lens?

As a critical gerontologist, I was frustrated at the outset by the phrase, “slowing human aging.” What does Daly intend this wording to encompass and exclude? Is it the equivalent of “the scientific quest to attenuate aging by manipulating the body” (p. 15)? Is “limiting caloric intake [which] reduces oxidative stress, allowing DNA to repair damage suffered by cells” (p. 54) a modern-day version of “holy anorexia” practiced by prayerful nuns during the Middle Ages?

This critique of flaws hardly lessens my admiration and respect for what Daly contributes. Rarely, in fifty years of evaluating multidisciplinary books on old age and longevity, have I so willingly engaged dialogically with an author. Addressing questions raised in *Chasing Methuselah* prompted rethinking the dialectical symbiosis of religion and science. Many of my colleagues in age studies will dismiss this book as an outlier, I suspect, because Daly’s Christological anthropology turns them off. That is a pity, if so: The debate and search for meanings embodied in *Chasing Methuselah* advances what truly matters in anchoring the aging enterprise.

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HUMAN PERSONHOOD

RESPONSIVE BECOMING: Moral Formation in Theological, Evolutionary, and Developmental Perspective by Angela Carpenter. New York: T&T Clark, 2020. 200 pages. Paperback; \$39.95. ISBN: 9780567698162.

Carpenter, in this well-written, methodologically astute, and thought-provoking study on moral formation rubs several unusual sticks together: Reformed theologies of sanctification, extended evolutionary synthesis theories, and current offerings in developmental psychology. The result is a wonderful fire that sheds much light on all these areas. This study is sure to be an important conversation partner for those interested in the ongoing dialogue between theology and the social sciences, as well as those interested in the doctrine of sanctification and its relationship to understandings of moral formation. We are in Carpenter's debt for such stimulating interdisciplinary work.

The subtitle lists Carpenter's three main interlocutors. In her first three chapters, she begins with a theological analysis of the views of sanctification of John Calvin (chap. 1), John Owen (chap. 2), and Horace Bushnell (chap. 3), in which she uncovers several "recurring questions and difficulties" in the Reformed tradition (p. 3). These difficulties include, first, the extent to which sanctification should be dependent upon "a particular cognitive-affective state" (p. 36)—namely that the believer trusts in God as a loving parent such that one's good works flow from this state of "faith." This can prove to be an unstable foundation given the "unreliability of subjective awareness" (p. 152). A second question centers on the extent to which God's trinitarian sanctifying action should be understood to work through, or alternatively totally displace, "intra-human sources of formation" (pp. 37, 152). Calvin's theology is filled with tension in these areas, tensions which are resolved in one direction in John Owen's theology as he reacts against "Pelagian" threats in his day and upholds "the integrity of grace" (p. 3) in a certain way. Owen emphasizes the objective work of God in sanctification, such that human cognitive-affective states do not matter much, nor is sanctification seen to be mediated through any human formative influences. Bushnell, responding against revivalist

accounts of sanctification in his day, takes the opposite tack, and emphasizes both the human subjective response to God and formative processes such as the nurture of children by Christian parents, so much so that "the activity of the Spirit cannot be considered apart from the natural means through which it operates" (p. 87). I learned much from Carpenter's appreciative yet incisive exposition and analysis, not least of which are the ways that typical Protestant views of sanctification, such as those of Calvin and especially Owen, can pull one in the opposite direction from much of the recent revival of virtue theory and discussions of formative practices in Christian ethics and practical theology.

The key link between these chapters and the following ones is the importance of the parent-child metaphor for the relationship of the Christian to God. "God as a loving parent and the faithful person as the adopted child of God" (p. 5) is a common and important image for Calvin, and indeed for the Christian tradition as a whole, as attested by the first two words of the Lord's Prayer. This raises questions about the extent to which the divine-human parent-child relationship has dynamics that are analogous to human-human parent-child relationships, and the extent to which natural processes of human moral formation are related to the process of sanctification through the gracious activity of God, our heavenly parent.

She pursues these and other questions through a deep dive into the intricacies of current discussions of evolutionary theory (chap. 4) and developmental psychology (chap. 5). In both these chapters, a recurring motif is that relationships of care, affect, and social acceptance bring about important changes in humans. The "niche construction" of systems of affect, attachment, and "concern for the emotions and welfare of others" (p. 111) plays a key part in our evolutionary history, and "early and affective social acceptance" (p. 129) plays a key part in the moral development of children. One can see how important moral changes that these natural processes create in human beings resonate with descriptions of sanctified human behavior that result from the parental love of God. Could these processes, especially when seen in light of trinitarian accounts of the work of Christ and the Spirit, help us better understand God's sanctifying work, without reducing God's gracious action

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to simply these natural processes? Could such an account help one move through the tensions within doctrines of sanctification in the Reformed tradition? This is the direction of Carpenter's questioning and answering throughout the text and especially in her constructive account of sanctification in chapter 6, "Sanctification Revisited."

I have so much admiration for this excellent study, and there is so much to respond to in this rich text. One key lesson I gained was that love, here understood primarily as an affective relationship of social acceptance and care, is not some added luxury in human life, but rather is a foundational component for human evolution and moral formation. As a theologian this will change the way I think about "justification," which was interestingly not a word highlighted in the text. Carpenter pushes me to anchor my Protestant understanding of justification deeply within the realm of a relationship of acceptance and care between a human and God, rather than seeing it primarily as a juridical status. Carpenter shows there are important "sanctifying" aspects of this relationship; the two theological concepts are linked in important ways.

I also came away with two primary sets of questions, especially regarding her proposals for a revisited doctrine of sanctification. The first has to do with the description of sanctification itself. What does a sanctified or holy life look like? Carpenter emphasizes aspects of sanctification that are direct results of being adopted as a child of God; in this way one becomes a "new being" in Christ (p. 153). This relationship with God satisfies "affect hunger" (p. 158) and provides a social context in which a "new heart" can develop (p. 158). Instead of focusing on an examination of one's own heart (p. 161), or alternatively on following rules or examples outside of oneself, such as the example of Jesus understood "legalistically" (p. 158), Carpenter emphasizes that the Christian life of sanctification is an ongoing repentance from alienation from the creator (p. 162); vivification occurs when one turns again and again to the loving arms of God (p. 163). My wonder here is whether increasing conformity with clear models of God's holy intentions for human life that go beyond the activity of continual repentance and returning to God should also be emphasized. Carpenter certainly talks about conformity to Christ, but the pattern of

Christ is usually talked about in terms of "repeated returning" (p. 161) and "perfect fellowship with the Father" (p. 162). I sense perhaps an overemphasis on Spirit, and not enough on Word or the patterns that sanctified life takes: in Calvin's trinitarian theology, "Word" (related to attributes of form, pattern, or way of life) and "Spirit" (related to the energy by which that form is achieved; see *Institutes* 1.13.18) must go together. While the law and prophets hang on the command to love God and neighbor, such love is fleshed out in a variety of holy ways of life that God intends for humanity. Carpenter's wariness about virtue ethics seems to go hand in hand with this reticence to name behaviors, virtues, or practices other than repentance, acceptance, and positive affectivity. It is unclear to me whether this is simply a matter of scope and focus—"focus on the relationship with God, rather than on one's inner life or outer behaviors" is a clear and salutary message throughout the text—or is a feature of her total understanding of sanctification.

I also wonder whether Carpenter's description of God's activity in sanctification could be improved by considering different ways that God relates to the world. Both Karl Barth and especially David Kelsey (in *Eccentric Existence*) have taught me to consider that God's activity toward all that is not God takes three primary shapes or "trinitarian taxes" in God's work of creation, reconciliation, and in drawing all that is not God to eschatological consummation. Carpenter's important insights about the foundational nature of affective relationships might find greater sharpness through a distinction between (1) God's creational work (which would be mediated generally through evolutionary processes which include human parent-child relationships), (2) God's reconciling work (which many would claim is mediated primarily and more particularly through the people of God), and (3) God's "kingdom" work (mediated through Spirit-inspired renewed ways of life). This might create greater space for talk of justice and vocation, as well as greater distinctions between God's activity in Christian communities and elsewhere. All three avenues of God's activity and human response to it involve the intertwined, yet unified, sanctifying work of God that is based upon affective acceptance; however, by noting these distinctions, greater space might be created both for greater specifications of holy living and for distinctions between

God's more particular and more general work in the world.

None of these wonderings should detract from the seminal nature of Carpenter's work. Her emphasis on the importance of intra-human and divine-human affective relationships in moral formation and sanctification provides an important foundational structure to discussions of sanctification. Carpenter's methodologically careful, insightful, and thought-provoking work will surely be a voice of continuing importance in ongoing discussions of sanctification within theology and in the needed intra-disciplinary dialogue between theology and the social sciences.

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Φ PHILOSOPHY

ALL THINGS WISE AND WONDERFUL: A Christian Understanding of How and Why Things Happen, in Light of COVID-19 by E. Janet Warren. Eugene, OR: Wipf & Stock, 2021. 208 pages + index. Paperback; \$27.00. ISBN: 9781725292031.

In *All Things Wise and Wonderful*, E. Janet Warren develops a multidisciplinary, Christian understanding of causation with the hope that it will help us "to respond with integrity and compassion for those who suffer" (p. 182). Warren is not short on familiar examples of uncompassionate responses to suffering that are worth critiquing: "God caused the pandemic to teach us to be kind" (p. 127), "Everything happens for a reason" (p. 180), and "This tragedy happened to grow your faith" (p. 22). Warren argues that these symptoms point toward a common diagnosis: a false, "omni-causal" view of God, according to which God "causes everything that happens, including pandemics" (p. 31).

Chapter 1: Introduction lays the groundwork for the rest of the book in two ways: first, by giving a complex taxonomy of philosophical distinctions bearing on causation; second, by introducing (as Warren argues) the problematic practice of too easily explaining an event as the result of God's direct causal intervention (e.g., God provided a parking spot!) when mundane explanations suffice. The tension between the complexity of causation and the human tendency to gravitate toward simplistic (divine) explanations becomes the book's recurring

theme. In chapter 2, Warren surveys biblical claims about causation, concluding that the Bible "does not give a simple account of causation," (p. 45) and encouraging the reader to "accept ambiguity and complexity" (p. 36) in the text rather than demanding a coherent biblical theory.

The third chapter, "What Does Christian Theology Say about Causation?" is the clear standout and would make a provocative discussion-piece for an undergraduate class on divine providence in a science and religion course. Warren contrasts two pictures of God, one in which God is an omni-causal, omni-controlling dictator of a deterministic world (pp. 57, 77) and another in which God is a servant king who relinquishes the option to utilize God's power in order to preserve space for indeterministic, creaturely freedom (pp. 53, 58). The strokes are intentionally broad, nudging the reader to see the potential ethical pitfalls of positing an omni-causal God. In particular, Warren worries that an omni-causal God would not be capable of being lovingly responsive to creaturely agents (p. 57).

In Warren's preferred picture, God builds a world that can host longstanding causal patterns without repeated divine intervention; once created, the world is, in some sense "self-causing" (p. 35) and does not require any special act of divine conservation. Although God does act in the world, God refrains from fully exercising his power to control in order to respect "the freedom he has granted to humans and the created order" (p. 60).

The contrasting portraits, however vivid, also preempt discussion of various middle views—one might distinguish between an omni-causing and omni-controlling God, for instance. Warren is also stronger on critique than on the details of her own positive proposal—perhaps by design. "The language of metaphor and analogies is more accessible," Warren writes, "than the language of philosophy or science" (p. 68). This is faithful to her refrain that real-world causal networks are messy and not easily wrapped in neat theological packaging, but it may prove frustrating to those readers eager to engage the details of a constructive project.

In chapter 4, Warren gives the reader a crash course in statistical concepts that are useful for understanding causation, quickly covering (for instance) base

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rates, regression to the mean, and the law of large numbers. Genuine chance is not incompatible with a kind of sovereignty, Warren argues; rather, God “created randomness” (p. 90) and is capable of guiding overarching events through it while fostering the vulnerability, excitement, and intellectual humility that comes with real chanciness. Chapter 5 asks what science says about causation. Notable—both for the audience it will attract and exclude—is Warren’s commitment to take divine healings, demonic activity, and parapsychology seriously while also summarizing key concepts from quantum theory and medicinal practice.

In chapter 6, Warren turns to psychological explanations of why we jump to simple causal explanations. Drawing liberally from Kahneman,¹ Warren introduces dual processing theory, distinguishing between our quick, automatic system 1 judgments and our reflective, deliberate system 2 judgments. Citing Barrett’s hypersensitive agency detection device² and Taleb’s narrative fallacy,³ among other mechanisms, Warren suggests that causal explanations that invoke a narrative about God’s intentions are often psychologically easy for us to jump to (via system 1). A reflective Christian should, Warren argues, be aware of this tendency and moderate our confidence in unreflective judgments about divine intervention in ordinary events.

Chapter 7 and the conclusion that follows take a pastoral turn and will be of special interest to church study groups. Alongside giving practical recommendations for exercising discernment, Warren concludes that “by better understanding the nature of causation and the nature of God’s interaction with our wise and wonderful world, we can better evaluate how and why things happen, without glibly assuming God causes everything” (p. 177).

Warren’s book could profitably be read by undergraduates in a science and religion course at a confessional college, with special attention given to the third chapter, which has points of contact with Polkinghorne,⁴ Bartholomew,⁵ Boyd,⁶ and Oord.⁷ But the book may be even more at home in study groups at (broadly) evangelical churches, where the writing’s therapeutic lens can shine. Warren’s easy prose is accessible as she hops without hesitation from the Bible to Polkinghorne to Aristotle to *Bruce Almighty*.

While the breadth of Warren’s book is impressive, any interdisciplinary book is liable to engage more fully with some disciplines than others. It is no surprise that Warren’s book is strongest when drawing on her expertise in medicine and theology and less so when discussing philosophy.

One philosophical concern for Warren’s argument against an omni-causal God is the possibility of causation from nonaction. Some philosophers think that absences cause: My *not* watering the plant causes it to die; my *not* calling on his birthday causes Dad to be sad. In each of these cases, there is something I could have easily done that would have prevented the effect. But if absences cause, then there is a serious challenge for Warren’s view. A powerful and wise (even if not classically omniscient) God can easily prevent most events from happening. God could easily have prevented me from getting that last parking spot or my friend from being infected with a virus. Perhaps, then, God’s *not* preventing these events should number among their causes (or at least their explanations).

This need not be a criticism of the overall theological picture Warren develops—one in which God does not intend or directly intervene to prevent the normal operation of the world except (usually) for explicitly theological reasons. Rather, I suggest that how much leverage can be gained by critiquing the concept of an omni-causal God depends on substantive philosophical commitments about the nature of causation and how causation relates to other philosophical concepts such as explanation and responsibility. Perhaps a God as powerful and involved as traditional Christian theology posits can’t help but be in close causal contact with the world—a God whose interventions, however sparingly placed, ripple far throughout the created world, either by preventing or by failing to prevent events that are well within God’s power to stop. If so, then “God didn’t cause that” may not often be strictly true. Even if God didn’t specially intervene with the purpose of bringing the event about, saying “God didn’t intend that,” “God didn’t plan that,” or “God didn’t want that” may be more honest. Retaining God’s action or inaction as causes of mundane events—while complicating the story about divine intent and providence—may also allow us to vindicate the biblical practice of prayerful complaint against God’s (in)action (with Job and

the psalmist) as a therapeutically important and theologically understandable response to suffering while simultaneously allowing us to join Warren's critique of "comforting" clichés about God's specific purposes for particular harms.

But these are concerns about tactics within the context of a shared goal to enrich and complexify Christian understandings of causation. At its best, Warren's work therapeutically nudges the reader toward a healthy skepticism of over-easy ascriptions of God's direct causal intervention in the world. And this amidst an ambitious, interdisciplinary conceptual toolkit that weaves accessibly through theology, philosophy, statistics, psychology, and the sciences more broadly.

Notes

¹Daniel Kahneman, *Thinking, Fast and Slow* (Toronto, ON: Doubleday Canada, 2011).

²Justin L. Barrett, *Born Believers: The Science of Children's Religious Belief* (New York: Free Press, 2012).

³Nassim Nicholas Taleb, *The Black Swan: The Impact of the Highly Improbable*, 2nd ed. (New York: Random House, 2010).

⁴John C. Polkinghorne, *Science and Providence: God's Interaction with the World*, 2nd ed. (West Conshohocken, PA: Templeton Foundation, 2005).

⁵David J. Bartholomew, *God, Chance and Purpose: Can God Have It Both Ways?* (Cambridge, UK: Cambridge University Press, 2008).

⁶Gregory A. Boyd, "The Open-Theism View," in *Divine Foreknowledge: Four Views*, ed. James K. Beilby and Paul R. Eddy (Downers Grove, IL: InterVarsity, 2001), 13–47.

⁷Thomas Jay Oord, *The Uncontrolling Love of God: An Open and Relational Account of Providence* (Downers Grove, IL: InterVarsity Academic, 2015).

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WHY SCIENCE AND FAITH NEED EACH OTHER: Eight Shared Values That Move Us beyond Fear by Elaine Howard Ecklund. Grand Rapids, MI: Brazos Press, 2020. 176 pages. Paperback; \$17.99. ISBN: 9781587434365.

Elaine Howard Ecklund is a professor of sociology, the Herbert Autrey Chair in Social Sciences at Rice University, and the founder of Rice's Religion and Public Life Program. She is well known for her studies of the intersection of science and spirituality, having published books on how scientists view religion (*Science vs. Religion*, Oxford University Press

2010, and *Secularity and Science*, Oxford University Press, 2019) and how religious people view science (*Religion vs. Science*, Oxford University Press 2017). In 2018 she delivered the Gifford Lectures at the University of Edinburgh on this topic. Her research takes advantage of a mixed methods approach, combining quantitative analysis of large-scale survey data and qualitative analyses of in-depth structured interviews. These scholarly studies have yielded interesting observations and paint a more complex and nuanced picture of this area than the caricature of irreconcilable conflict often suggested by the general media.

Why Science and Faith Need Each Other: Eight Shared Values That Move Us beyond Fear is Ecklund's first book in this area directed toward a lay audience. It is an engaging book that integrates her research and that of others, as well as personal anecdotes and stories, to illustrate her main points. It is designed not only for individual reading, but also for discussion in small groups, as each chapter finishes with suggested questions for further discussion. Although oriented toward a lay audience, it is carefully referenced for readers who are interested in delving into the primary sources. While not explicitly stated, the book appears directed, in particular, to evangelical Protestants who are more likely than other Christians to have difficulties integrating science and faith in their worldviews. This is consistent with much of the data cited in the book in which evangelical Protestants are often more likely than mainline Protestants and Catholics to hold skeptical views regarding certain aspects of science. It is also consistent with the funding support for this book—a Templeton Religion Trust grant for a project entitled Reaching Evangelical American Leaders to Change Hearts and Minds.

The main thesis of the book is that science and faith share eight common values; an awareness of these commonalities can provide a meeting point where people of faith and scientists can come to better understand each other and thereby decrease fear and suspicion toward each other. These values are curiosity, doubt, humility, creativity, healing, awe, shalom, and gratitude, with a chapter devoted to each of these values. The first four values relate to what Ecklund calls "process"—values which speak to how scientists carry out their work and how people of

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faith develop their spirituality. The latter four values relate to what Ecklund calls “redemption” – values which speak to the practical applications of the work of scientists and the practical responses emanating from the spirituality of people of faith, with both groups exercising these responses toward improving the common good.

I was certainly convinced that these values are shared by both people of faith and scientists as attested to by citations from her research and the literature. But I think that they are shared in different ways and to different degrees. Part of this reflects differences in their core features: science is above all a process, a method of looking at the world and viewing it through the lenses of observation and reason to generate, usually, some mechanistic understanding. So if we consider the value “doubt,” for the scientist, doubt is an essential part of the scientific method that involves constantly exploring alternative explanations for the observations. Without doubt, the scientist would achieve little progress. Faith is, above all, a process or method of looking at life and addressing questions of meaning and purpose. Although many persons of faith experience doubt at some point in their journey and processing such doubt can be a path to spiritual growth, it is not essential and certainly not a daily part of life for most believers. Conversely, “gratitude” is essential to the person of faith, forming a core part of the believer’s daily worship and often present even in times of suffering. Without gratitude, the person of faith achieves little spiritual progress. Scientists, including the Christian ones referred to by Ecklund, may express a sense of gratitude for the opportunity of discovery and for the potential benefits to humanity of the results of such discovery; however, it is not an essential value for the scientist and is unlikely to be expressed by most scientists in a prominent way on a daily basis.

Arguments can be made for similar differences in the expression and relative importance of some of the other values such as curiosity, creativity, and awe. Such probing can be fodder for interesting discussions by groups using the book. Although these discussions may suggest that the terrain of this common meeting place for scientists and people of faith may be rough and uneven, I believe that such discussion will lead to a better understanding of scientists and people of faith. Differences in the expression of

these values may lead to recognition of the distinct purposes and methods used by science and religion that underlie the irregular terrain. As quoted by Ecklund, distinctions between science and religion are famously described by the late paleontologist Stephen Jay Gould as “non-overlapping magisteria.” These non-overlapping magisteria govern distinct parts of life—“science in the empirical constitution of the universe and religion in the search for proper ethical values and spiritual meaning of our lives” (p. 154). Perhaps it is a recognition of the shared values of science and faith as well as their non-overlapping and complementary areas of endeavor that will have the best chances of resolving fear and suspicion between scientists and people of faith. Some conflict will persist as the magisteria are not completely non-overlapping. For example, as discussed in the chapter on healing, reproductive genetic technologies that incorporate gene editing have the potential to correct some human genetic disorders as well as to enhance certain human traits. The uses of such technologies involve both a scientific understanding of human development and a religious understanding of the nature of being human and the role of suffering in life. Such areas of overlap will likely be a source of contention for some time.

Ecklund has written a thoughtful book that addresses areas of interest shared by both scientists and people of faith and explores some of the issues that may continue to divide them. It will be a useful book for facilitating discussions about science in our faith communities—something which Ecklund correctly identifies as sorely lacking. However, I am not convinced that she has truly answered the question of “why science and faith need each other.” The word “need” implies that one is diminished by having only one, without the other. She cites scientists who feel that their faith has enriched their work. But is “enriching” all that faith can do, and is that a need or an optional enhancement? If it is indeed a need, then there should be evidence of benefit by those who possess both. Do scientists of faith produce more or fewer leading-edge discoveries than secular scientists? Are they more or less likely to be outstanding mentors, more or less likely to become academic leaders or leaders in industry, more or less likely to serve in professional societies? Similarly, are people of faith who have positive views of science and employ values such as curiosity, doubt,

creativity in ways similar to that of scientists—are they more or less likely to be leaders or influencers in their community, more or less likely to be satisfied with their spiritual lives, more or less likely to be involved in outreach, evangelism, or social justice ministries? As sociologists with extensive experience in this area and in the required methods, Ecklund and her colleagues are uniquely equipped to answer these questions.

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SOCIOLOGY OF SCIENCE

THE SCIENTIFIC METHOD: An Evolution of Thinking from Darwin to Dewey by Henry M. Cowles. Cambridge, MA: Harvard University Press, 2020. 384 pages. Hardcover; \$35.00. ISBN: 9780674976191.

Despite its main title, this book is not an analysis of the scientific method as such, or its use by scientists, but rather it is a socio-cultural history of that method as an idea, as the subtitle indicates. Cowles begins the book with the eye-catching claim: “The scientific method does not exist. But ‘the scientific method’ does.” By this he means that the scientific method, as portrayed in (high school) science textbooks, does not exist as a universal method employed by scientists in their quest for new knowledge. Rather, what does exist is a history of ideas: a set of philosophical ideas that transformed into notions about the mind and cognition, which ultimately ended up as a set of steps in introductory chapters in textbooks presented as a universal method.

Cowles combines exhaustive research with interesting storytelling to weave a fascinating narrative about the history of the idea of method. The second chapter, “Hypothesis Unbound,” sets the stage for his narrative: although Thomas Carlyle, Charles Babbage, and John Herschel make cameo appearances here, Cowles’s main thread is the public philosophical disagreement between William Whewell and John Stuart Mill on what constituted thinking. This prepares the ground for Cowles’s main thread, which begins in earnest with the third chapter, “Nature’s Method.” Here he suggests that Charles Darwin’s goal of presenting evolution meant paying close attention to methods of thinking—and this began

the story of how a philosophical idea about method evolved into taking it as a natural form of cognition.

Chapter four, “Mental Evolution,” highlights Alexander Bain and Herbert Spencer’s thought, which takes the debates about method and evolution into the realm of social development, whereas chapter five, “A Living Science,” chronicles the rise of pragmatism in the United States—with Charles Pierce and William James—and its use of method as a way to think about logic, psychology, and practical problem-solving. Chapter six, “Animal Intelligence,” feels a bit like an interlude with its focus on the rise of behaviorism in psychology, featuring John Watson, Edward Thorndike, and B. F. Skinner. Cowles’s history ends with two chapters entitled “Laboratory School” and “A Method Only,” in which he narrates how John Dewey’s book *How We Think* became the basis for embedding this naturalized model of thinking into textbooks as “the scientific method.” The main threads of Cowles’s narrative move from discussions around what sort of methodology might unite science generally to the way that psychology sought to read “method” as a way of understanding intelligence and cognition.

As a book of cultural history, *The Scientific Method* is a fascinating, detailed account of how “method” threaded its way through political, cultural, social, and academic discussions. Cowles’s chapters are exhaustively researched, and are peppered with quotes and anecdotes. It is impressive scholarship, although perhaps dizzying at times, for it is sometimes difficult to keep track of the main theme in the myriad of detail that rushes at the reader. This also makes the book feel a bit unfocused—as a chapter develops its rich details of analysis and discovery, the main idea about accounting for “the scientific method” seems to get lost; at times, it is difficult to see the relevance of all the rich and interesting detail to the book’s main point.

Further, although the book claims, in its first chapter, to show that there is no such thing as “the scientific method,” it actually spends little to no time actually analyzing the legitimacy of “the method” itself or its possible use among scientists, either in the social or natural sciences. Do psychologists or sociologists use (something like) scientific methods? Do biologists, chemists, or physicists? Cowles’s book says little about this. Although Cowles’s introductory

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claim might lead a reader to think that they would find at least reference to philosophical analyses of the scientific method—such as Barry Gower’s historical and philosophical book, *Scientific Method* (Routledge, 1997)—Cowles’s book is not about the use of methods by actual scientists in the course of their research nor about a philosophical analysis of the philosophical debates and controversies around “the scientific method.” This might have required substantive discussion—perhaps with their own chapters—about figures such as Galileo Galilei, Francis Bacon, and Isaac Newton, as well as more recent figures such as Rudolf Carnap, Karl Popper, and Hans Reichenbach; discussions around induction and truth would have figured more prominently as well. Although, at the start of the book, a reader might feel that the book is meant to be a complete history of this idea, in the end, it has a more limited claim—that is, how “the scientific method” ended up as a set of steps of inquiry in (high school) science textbooks. Cowles’s book is an interesting history of this more limited claim, and those looking for a more conceptual or philosophical discussion around the merits of “the” scientific method, will have to look elsewhere.

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SECLARITY AND SCIENCE: What Scientists around the World Really Think about Religion by Elaine Howard Ecklund et al. New York: Oxford University Press, 2019. 352 pages. Hardcover; \$31.95. ISBN: 9780191926755.

I was raised in the 1980s and 1990s under conservative evangelicalism, which means my father’s bookshelf was full of creation/evolution texts, and we never missed Ken Ham when he came to town. The conflict narrative between science and religion was in full force then, and it remains with us today (if slightly diminished). Religious conservatives weren’t the only ones talking secularization, though. Scholars such as Peter Berger had observed decades earlier that science often acts as a carrier of secularization. Berger lived long enough, however, to see that secularization did not unfold as expected, and he modified his view near the close of the millennium to indicate that secularization is not a uniform process. Rather, we observe “multiple modernities” marked by various trajectories of secularization and religious growth.

Such is the essential backdrop for *Secularity and Science: What Scientists around the World Really Think about Religion*. Here, Rice University sociologist Elaine Howard Ecklund and her team ask a simple and compelling question: If science is linked to secularization—as the story so often goes—what do scientists actually think about religion? The answer comes via survey research on 20,000 physicists and biologists in France, Hong Kong, India, Italy, Taiwan, Turkey, the United Kingdom, and the United States, as well as 600 in-depth interviews. The result is an impressive and wide-ranging report not only on the status of religion and science in a global perspective, but also on several theoretical and practical considerations surrounding the secularization debate. As sociologists they take care to address hierarchical and institutional matters (i.e., academic rank, university status and prestige, levels of science infrastructure, etc.), and as scholars of religion they investigate how religious factors vary across national contexts (i.e., definitions of religion and spirituality, religious characteristics of populations, state-church relations, antagonism between scientists and the general public, the place of religion in the scientific workplace, etc.). Each country or region receives a focused chapter, briefly summarized below.

The *United States* (chap. 3, “The ‘Problem’ of the Public”) is characterized by a soft secularism in which 65% of scientists believe in God. US scientists aren’t particularly antagonistic to religion, but significant conflict between scientists and the public exists due to the large, politically active, conservative Christian population. This public issue plays a role in undermining the US scientific enterprise.

In the *United Kingdom* (chap. 4, “‘New Atheists’ and ‘Dangerous Muslims’”), 57% of scientists believe in God. The UK is characterized by a unique dynamic in which new atheist scientists speak at the popular level while at the same time half of the country’s scientists originate outside the UK, often bringing religious values with them. UK biologists expressed concern about a growing Muslim population and implications for some realms of scientific thought (e.g., evolution).

In *France* (chap. 5, “Assertive Secularism in Science”), 49% of scientists report belief in God. French secularism is based on *laïcité* (freedom from religion) and the

state actively excludes religion from public life. The result is that dialogue between religion and science is difficult to sustain, with *laïcité* disproportionately affecting Muslim women in science.

Eighty percent of scientists in *Italy* (chap. 6, “A Distinctively Catholic Religion and Science”) believe in God. Conflict between science and religion is a non-issue, largely due to the monolithic nature of cultural Catholicism (“Everyone’s Catholic. And nobody cares,” p. 7). Even non-Catholic scientists, many of whom identify as “spiritual but not religious,” tend to see religion and science as separate realms in what could be called “a version of religious modernity.” Scientists belonging to certain Catholic networks appear to have better access to jobs, funding, and other opportunities.

In *Turkey* (chap. 7, “The Politics of Secular Muslims”), 94% of scientists say they believe in God. Turkish scientists broadly believe in God but do not see themselves necessarily as personally religious. They observe little conflict between science and religion when Islam is considered broadly, but express concern about the ascendancy of a political form of Islam which threatens academic freedom. Many Turkish academics are leaving the country, and scientific infrastructure has suffered in recent years.

In *India* (chap. 8, “Science and Religion as Intimately Intertwined”), 90% of scientists report belief in God, and religious affiliation among scientists is higher than in the general public. India is a growing scientific superpower, and religion is so “in the air” that Indian scientists often make connections between religion and science without even noticing. A number of Indian scientists observe that the “conflict” between religion and science is a Western construction.

In *Hong Kong and Taiwan* (chap. 9, “A Science-Friendly Christianity and Folk Religion”), 90% (Taiwan) and 74% (Hong Kong) of scientists believe in God or gods. Like India, affiliation among scientists is higher than in the general population. Both of these regions’ education systems have been influenced by Christianity, and scientists in Hong Kong speak of meeting faculty and administrators in the sciences at Christian churches. Despite the influence of Christianity, the Western science and religion conflict narrative is not strong.

These summary points hardly do justice to the scope of the authors’ project, but they do highlight something that they themselves hold up as a central finding: namely, that *conflict between religion and science is an invention of the West*. The data indicate that a conflict perspective animates just one-third of scientists in the US, the UK, and France, with the remaining countries evincing much lower numbers. Rather, science and religion are most commonly viewed as different aspects of reality—independent of one another—a view embraced by both nonreligious and religious scientists. Regarding religious scientists, the authors report that from a global perspective there are many more than commonly assumed. Even scientists themselves consistently underestimate the proportion of their colleagues who are religious.

Overall, the book provides tremendous insight, thanks to rich quantitative and qualitative data, into how national and social contexts shape and interact with scientists’ views of religion. No other study of this magnitude exists, and that fact alone makes it a remarkable achievement worthy of examination. Its greatest strength lies in the treatment of each country and region, with effective data and storytelling illuminating the relation between science and religion in that location.

The primary weaknesses are the minimal synthesis of cross-national data and the limited discussion of how results fit within the larger secularization debate (which the authors use to frame the book). Secularization themes are treated on a country-by-country basis, but only seven pages of the concluding chapter attempt a synthesis, and the discussion is largely practical. Given the expertise of the authors involved, it feels like a missed opportunity for a more theoretically rich discussion. I would like to have seen, for example, discussion on whether the independence model (as opposed to the conflict model) is itself linked to secularization. The majority of the world’s scientists may be at least nominally religious, but without explicit philosophical and theological work to engage science, isn’t it probable that the independence model might just as easily contribute to secularization as oppose it? In other words, whose secularity are we talking about? Strong atheists may view independence as accommodating religion; the highly devout may interpret it as another facet of secularity.

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That said, the book is an empirical rather than a theoretical work, and an excellent one at that. The data are rich enough for readers well versed in the secularization debate to incorporate them into their own hypotheses. The primary message, supported by a wealth of rigorous data, indicates that global scientists are more religious than we often realize, and that narratives around science and religion in the US are not the only ones requiring our attention.

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TECHNOLOGY

MASTERS OR SLAVES? AI and the Future of Humanity by Jeremy Peckham. London, UK: InterVarsity Press, 2021. 256 pages. Paperback; \$31.99. ISBN: 9781789742398.

Will humans maintain their status as masters of their own creation or will they inevitably become slaves to these creations? Jeremy Peckham's book is another Christian analysis of the progress in artificial intelligence (AI) and a warning to the world of the dangers AI poses for the individual and for society at large. Peckham believes that the unregulated research and development of AI coupled with the laissez-faire usage of AI systems will result in humanity's degradation.

In the first chapter, Peckham captures the reader's attention by presenting a short fictional account of the Jefferson family starting their day in a world saturated with computer technology. This introductory story highlights the new technological reality in which we need to seriously explore AI's influence on humanity. In chapters two and three, Peckham presents a quick historical overview of computer and AI development. Chapter two begins with how computers and AI started as simplistic number-crunching machines that went from "winters" of technological disappointment to rapid progress with massive global impact. With this rapid evolution of AI, a necessary change is needed to determine whether AI can be considered morally neutral.

To address the growing danger and influence AI has on humanity, Peckham builds his argument in chapter four on the foundation that there is something special and unique about humanity. Humans are not only flesh and blood creatures but also bearers of

God's given *imago Dei* ("image of God"). This *imago Dei* is what separates humans from other nonliving and living things. In addition, as part of the *imago Dei*, Peckham affirms that humans have true freedom of choice. While Peckham does not provide a comprehensive examination of various philosophical stances regarding free will, he suggests that the ability of human beings to make choices freely is crucial to understanding how they are created in God's image. Beginning with the foundation of human's *imago Dei*, Peckham develops a Christian critique of AI by examining technology's effect upon this most important aspect of humanity.

Following his chapter on humanity's *imago Dei*, Peckham's main argument is further developed in chapters five to ten where he identifies six key areas of technology which threaten or have the possibility of threatening the *imago Dei*. In chapter five, Peckham is concerned that the continued reliance on AI to make decisions based on the premise that AI is unbiased is dangerous. Trusting AI technology in this manner further distances our relationship with other humans and elevates AI "reasoning" to human-like levels. In chapter six, human relationships with chatbots and digital assistants are the focus. Here, Peckham fears that the increasingly human (and often female) personification of digital assistants will lead to a distortion of emotional attachment and even to the illusion that we owe these artifacts ethical treatment. In chapter seven, Peckham considers whether the increased convenience and perceived general safety offered by state-controlled AI is worth the cost of restricting individual freedoms. For Peckham, the cost of individual freedom is too high a price to pay for the convenience which the state or the "Big Tech" companies now wield with substantial power and influence over the individual.

Chapter eight highlights the moral dilemma of whether an autonomous machine (such as a self-driving car) should be held morally responsible for its actions. Peckham believes that moral responsibility must ultimately remain with a human rather than placed on a machine. In chapter nine, Peckham addresses the growing concern that continued AI progress will result in fewer jobs available or in jobs that require higher technological proficiency. To address this growing concern, Peckham briefly explores the possibility of a UBI (universal basic

income) and encourages a reexamination of a theology of work. Finally, Peckham's last critique of AI centers on its implementation in video games and virtual reality. Peckham fears that these digital realities present a slippery slope for users who will be unable to differentiate between true reality and digital reality.

In the final two chapters (eleven and twelve), Peckham considers a Christian response to AI progress along with developing a Christian manifesto toward AI research and usage. Rather than utilizing AI technology mindlessly or carelessly, Peckham exhorts the reader to seriously consider the substantial influence AI has upon the individual and how AI development should be regulated moving forward. To properly consider and regulate AI, Peckham argues that a Christian worldview provides the best framework with which to understand humanity and our relationship with technological artifacts. Thus, his brief Christian manifesto serves to introduce how Christians can have a voice in the AI conversation.

Peckham's educational and vocational background in computer technology serves him well in writing this book. He has worked on computer and AI technology in both the government and commercial sectors. With his background in various AI technologies, Peckham understands how AI technology is built, how it functions, and the intentions behind the design. This is a strength of the book since many Christians who discuss AI often lack the requisite training and expertise.

Although Peckham does understand AI technology well, he does not examine the ontological considerations of AI. Peckham looks mostly at the effects of AI technology and then tries to develop a critique of that technology rather than relying on more philosophical arguments. Peckham's critique throughout the chapters would be stronger if he considered an ontology of AI or provided a more detailed explanation of what AI is before presenting his critique. At several points throughout the book, Peckham implores the reader to consider the harmful consequences of AI technology, but he does not look into the deeper fundamental philosophical presuppositions.

In addition, chapter ten, addressing video game AI and virtual reality technology, comes across as outdated, restating many of the traditional Christian

arguments against video games. While Peckham does helpfully highlight the new AI technologies used in video games (such as augmented and virtual reality), his criticisms of video games ignore the numerous variations of games as well as the communities built around video games. By presenting a familiar Christian critique, Peckham risks dismissing some of the more-recent developments in the video game industry as well as alienating readers who are active within that community.

Overall, *Masters or Slaves?* is a welcome addition to the growing Christian literature on AI. In comparison to other recent Christian publications on AI, such as Jason Thacker's *The Age of AI* or John Lennox's *2084*, Peckham's contribution has a stronger technical foundation due to his extensive background in the technology. Peckham expresses moral concerns similar to those of other authors about the development of AI, while covering a large number of areas that AI currently, or will inevitably, affect. Although Peckham could certainly provide even more background on specific AI technologies, his book serves as an excellent introduction to a Christian response to AI.

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THE ALIGNMENT PROBLEM: Machine Learning and Human Values by Brian Christian. New York: W.W. Norton, 2020. 344 pages. Hardcover; \$28.95. ISBN: 9780393635829.

The global conversation about artificial intelligence (AI) is increasingly polemic—"AI will change the world!" "AI will ruin the world!" Amidst the strife, Brian Christian's work stands out. It is thoughtful, nuanced, and, at times, even poetic. Coming on the heels of his two other bestsellers, *The Most Human Human* and *Algorithms to Live By*, this meticulously researched recounting of the last decade of research into AI safety provides a broad perspective of the field and its future.

The "alignment problem" in the title refers to the disconnect between what AI does and what we want it to do. In Christian's words, it is the disconnect between "machine learning and human values." This disconnect has been the subject of intense research in recent years, as both companies and academics

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continually discover that AIs inherit the mistakes and biases of their creators.

For example, we train AIs that predict recidivism rates of convicted criminals in hopes of crafting more accurate sentences. However, the AIs produce racially biased outcomes. Or, we train AIs which map words into mathematical spaces. These AIs can perform mathematical “computations” on words, such as “king - man + woman = queen” and “Paris - France + Italy = Rome.” But they also say that “doctor - man + woman = nurse” and “computer programmer - man + woman = homemaker.” These examples of racial and gender bias are some of the numerous ways that human bias appears inside the supposedly impartial tools we have created.

As Norbert Wiener, a famous mathematician in the mid-twentieth century, put it, “We had better be sure the purpose put into the machine is the purpose which we really desire” (p. 312). The discoveries of the last ten years have shocked researchers into realizing that our machines have purposes we never intended. Christian’s message is clear: these mistakes must be fixed before those machines become a fixed part of our everyday lives.

The book is divided into three main sections. The first, *Prophecy*, provides a historical overview of how researchers uncovered the AI biases that are now well known. It traces the origins of how AI models ended up in the public sphere and the history of how people have tried to solve the problems AI creates. Perhaps one of the most interesting anecdotes in this section is about how researchers try to create explainable models to comply with GDPR requirements.

The second section, *Agency*, explores the alignment problem in the context of reinforcement learning. Reinforcement learning involves teaching computer “agents” (aka AIs) to perform certain tasks using complex reward systems. Time and time again, the reward systems that researchers create have unintended side effects, and Christian recounts numerous humorous examples of this. He explains in simple terms why it is so difficult to correctly motivate the behaviors we wish to see in others (both humans and machines), and what it might take to create machines which are truly curious. This section feels a bit long. Christian dives deeply into the research of a few

specific labs and appears to lose his logical thread in the weeds of research. Eventually, he emerges.

The final section, *Normativity*, provides perspective on current efforts to understand and fix the alignment problem. Its subchapters, “Imitation,” “Inference,” and “Uncertainty,” reference different qualities that human researchers struggle to instill in machines. Imitating correct behaviors while ignoring bad ones is hard, as is getting a machine to perform correctly on data it hasn’t seen before. Finally, teaching a model (and humans reading its results) to correctly interpret uncertainty is an active area of research with no concrete solutions.

After spending over three hundred pages recounting the pitfalls of AI and the difficulties of realigning models with human values, Christian ends on a hopeful note. He postulates that the issues discovered in machine-learning models illuminate societal issues that might otherwise be ignored.

Unfair pretrial detection models, for one thing, shine a spotlight on upstream inequities. Biased language models give us, among other things, a way to measure the state of our discourse and offer us a benchmark against which to try to improve and better ourselves ... In seeing a kind of mind at work as it digests and reacts to the world, we will learn something both about the world and also, perhaps, about minds. (p. 328)

As a Christ-follower, I believe the biases found in AI are both terrible and unsurprising. Humans are imperfect creators. While researchers’ efforts to fix biases and shortcomings in AI systems are important and worthwhile, they can never exorcise fallen human nature from AI. Christian’s conclusions about AI pointing to biases in humans comes close to this idea but avoids taking an overtly theological stance.

This book is well worth reading for those who wish to better understand the limitations of AI and current efforts to fix them. It weaves together history, mathematics, ethics, and philosophy, while remaining accessible to a broad audience through smooth explanations of detailed concepts. You don’t need to be an AI expert (or even familiar with AI at all) to appreciate this book’s insights.

After you’re done reading it, recommend this book to the next person who tells you, with absolute certainty, that AI will either save or ruin the world.

Christian's book provides a much-needed dose of sanity and perspective amidst the hype.

Reviewed by Emily Wenger, graduate student in the Department of Computer Science, University of Chicago, Chicago, IL 60637.

THE MYTH OF ARTIFICIAL INTELLIGENCE: Why Computers Can't Think the Way We Do by Erik J. Larson. Cambridge, MA: Belknap Press, 2021. 312 pages. Hardcover; \$29.95. ISBN: 9780674983519.

The Myth of Artificial Intelligence (AI) offers a technical and philosophical introduction to AI with an emphasis on AI's limitations. Larson, a computer scientist and tech entrepreneur, keeps his central claim modest: true general AI is neither inevitable nor imminent, and if it is possible, it will require fundamentally new approaches. It is an easy read, combining references to fiction, history, and science. It lays out a bird's eye view of the origins and ideas behind current AI methods, focusing on general AI, a category of AI that would need to learn and engage with a wide variety of problems.

Separated into three parts, *The Myth of AI* begins with the history and algorithmic logic of AI, largely through the lens of the Turing test. Larson argues that we are not near the singularity (superintelligent computers able to create ever more intelligent machines) and that, in fact, the basic premise of the singularity is flawed.

The second part discusses inference. AI falls short of human intelligence because it can work with hard rules, but cannot make the guesses necessary to formulate new ones or handle uncertain rules. In attempts at the Turing test, AI can throw data at the problem but will always lack understanding. Achieving the understanding necessary for true intelligence will require an approach fundamentally different from recent advances made in AI, which are only effective for narrow AI (a category of AI for solving specialized problems) and not general AI.

The final, and relatively brief, part examines AI in science. According to Larson's assessment, new scientific research relies heavily on newly available computation power and big data in order to use narrow AI to its full extent. Larson claims that this approach will hinder development of new theories. He also claims that this leads to treating scientists as if they were computers as well, which causes overvalu-

ing the system of science above people. He criticizes "swarm science," which he describes as a large group of scientists approaching one problem with a variety of projects, emphasizing this collaboration over the individuals. Instead, he claims, we need our culture to continue to emphasize individual discovery and intelligence, as it is the key to innovation.

Through the discussions of the history, philosophy, and logic of AI in the first two parts of the book, Larson disentangles the hype of AI from what is actually possible with current technology. Even as he sheds light on the gap between the singularity prediction and what machine learning is truly capable of, he emphasizes the significance of the myth. "The myth is an emotional lighthouse by which we navigate the AI topic" (p. 76). The stories we tell through predictions and science fiction define AI in the public eye and set the goals for AI research.

Our underlying philosophy matters as much as the current state of AI research, when we consider the social role of AI and what we predict for our future. In the development of AI, we must define intelligence and explore what it means to be human. While this is not a book with overtly religious claims, it does acknowledge the spiritual claims inherent in discussions of personhood. It also frames technoscience as replacing philosophy and religion and as the oversimplified understanding of humanity and the precursor to expectations of the singularity.

Beyond the stated goal of disenchanting the reader of the inevitability of AI, the book highlights the significance of stories to both society and science and emphasizes the importance of understanding for both humans and AI. We need to understand not only the technical aspects of the technology we build but also the philosophy that defines our goals.

While I found the first two sections of the book to be an engaging and accurate discussion of the tension between the science and hopes of AI, I had concerns about the warnings of "swarm science" in the third. Larson is placing a strong emphasis on individual genius in science; however, science has never been a truly independent endeavor. Many times in history, from evolution to DNA, multiple teams of scientists independently made the same discoveries at nearly the same time, based on previously published work. Though these discoveries were not inevitable, they

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built upon other research and relied on collaboration at least as much as individual genius. Larson focuses on a particular neuroscience project and makes some valid criticisms, but then he generalizes his observations to all of science in ways that I do not believe to be accurate. His argument that all of science is moving away from theory toward shallow observations is not as obvious as he claims, nor is it supported by the evidence offered in the book.

As a counterexample, the research that resulted in the COVID-19 vaccine could be considered “swarm science” and was effective. Large amounts of funding were very suddenly directed to many scientists for one goal: understand and prevent the coronavirus. Due to both new funding and established research, we developed and approved multiple vaccines in one year. I was not convinced of several of Larson’s generalizations in this third section. Tension between celebrating collaboration and individual genius will persist. However, it appears that there is more collaboration in science today. This is likely due to a variety of reasons, including a scientific community connected by the internet and more contributors receiving appropriate credit for their work.

The Myth of AI is a broad view of AI that should prove valuable and comprehensible to readers with or without a technical background. The first two sections offer a clear explanation and history of AI, and the third offers food for thought on how the process of science has been shaped by advances in AI and computer technology. The first sections would be a good introduction to someone not familiar with AI or looking to think about the philosophy of AI and I would recommend the book for these sections.

While the book avoids religious claims, the philosophical discussions of what it means to “understand” and the level of trust we place in AI are essential questions for Christians working in technology-related disciplines. *The Myth of AI* presents a jumping-off point for much deeper reflection about using AI responsibly and what it means to be human.

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THEOLOGY

SCIENCE IN THEOLOGY: Encounters between Science and the Christian Tradition by Neil Messer. New York: T&T Clark, 2020. xii + 191 pages. Paperback; \$22.95. ISBN: 9780567689818.

When reading this title, I confess that I wondered if we really need another book on science and theology, or another typology of the relationship between the two, or another critique of typologies. On finishing the volume, however, I believe that it does indeed make a helpful contribution to the expanding literature on the subject.

Neil Messer, professor of theology at the University of Winchester, UK, has a PhD in molecular biology and an MA in Christian ethics. *Science in Theology* is a well-researched, accessible treatment of the relationship between the two. The preposition in Messer’s title is intentional, suggesting that we focus on what part science plays *in* our Christian conceptions about ourselves and our world in relation to God, rather than adopting a modern view of science *and* theology as separate categories. This hints at his welcome prioritizing of theology—faith seeking understanding, not faith looking for science to justify faith’s veracity. Like many, he considers both the voice of the Christian tradition (incorporating the familiar quadrilateral of scripture, tradition, reason, and experience) and the scientific voice (including only the last two aspects of the quadrilateral). Messer argues that previous typologies are too broad and have difficulty accommodating the diversity and complexity of current literature in the field.

He proposes a five-fold typology, which I find appealing in its simplicity and applicability:

1. Only the scientific voice contributes; contributions from Christianity are denied or dismissed.
2. Both voices contribute, but the scientific one is dominant; Christian claims must be adjusted to fit the scientific perspective.
3. Both voices contribute equally.
4. Both voices contribute, but the Christian one dominates in shaping the encounter.
5. Only the voice of the Christian tradition contributes; scientific claims are denied or dismissed.

What is unique about Messer's work is not just his new typology, but the fact that he tests it and, in doing so, also provides a summary of the current literature in three diverse areas of the science-faith dialogue: divine action, natural evil, and the cognitive study of religion. Messer notes that his typology focuses on the approach to a topic, not on the content of the argument. Thus, two authors may use the same method but disagree with each other's conclusions. In addition, the contribution of each tradition is qualitative as well as quantitative; how much as well as what we learn from science or theology is important.

Messer acknowledges that it is easy for types to meld together: a Type 3 plan can easily slip into a Type 2, and a Type 4 approach could be similar to the concept of non-overlapping magisteria (more like Type 5). He cautions that his typology can only describe particular positions, and thus should not be used to make generalizations. He also admits that his typology focuses on cognitive aspects of faith to the exclusion of confessional and practical aspects, and that not all topics allow integration (e.g., Christ's incarnation and resurrection, eschatology). However, Messer's typology does allow for flexibility and nuance—he claims that his typology makes diversity more visible. Furthermore, each approach can be used as a critique to the others.

Messer notes that Types 1 and 5 tend to close down the dialogue but offer helpful contributions on occasion. Interestingly, he notes an example of a Christian who uses a Type 1-style argument: cognitive scientist Justin Barrett uses only empirical evidence and reason to support claims about God's existence and nature. Messer believes that Types 3 and 4 are generally the most helpful approaches. This is interesting because it is often assumed that ideal science-faith integration should allow equal contributions. But a true Type 3 approach is challenging because we all start from a particular position. If we view the world through a Christian lens, then Type 4 becomes the aim.

With respect to his first topic, divine action, Messer appropriately notes that most of the work done in this area, namely the Divine Action Project, has been of a Type 2 variety. The critique is that excess reliance on science may limit our conceptions of how God acts in the world. This was personally helpful,

as I have questioned the feasibility of such a project—categorizing it helps to explain my doubts. Messer discusses the recent "theological turn" in the debate, noting that it too has problems.

On the topic of evolution and natural evil, Messer, not surprisingly, refers to his own publications, categorizing his work as Type 4. He argues that Type 2 approaches require unnecessary distancing of God from his creation, and that the "only way" or "best of all possible worlds" (Type 3) argument of Christopher Southgate inadequately accounts for suffering, and places too much weight on science as a means for understanding God's goodness. Messer instead follows Barth in viewing evil as "nothingness," a by-product of creation, and emphasizes our need to counteract evil.

I especially appreciate Messer's inclusion of scientific studies of religion as his final test case; this topic is not often considered in science-theology texts. He considers cognitive factors in religious belief, evolutionary accounts of religion, and neuroscientific studies of belief. Type 3 examples include Barrett's "confessional natural theology" and Nancey Murphy's idea of theology as secondary to experience. Barth's critique of theology that starts with human experience is used as an example of Type 4 (although Barth would not have known about scientific studies of religion). Perhaps because of the diversity of the topic, the treatment of it was less clear than in previous chapters. Works used to illustrate the typologies are often addressing quite different questions. This chapter would have benefited from a clarification of the distinctions between faith and religion, and a consideration of differing presuppositions, such as the mind-brain relationship, in the various positions.

In his conclusion, Messer interestingly considers other voices aside from science and theology, namely, philosophy and the arts. I love that he offers a nod to poetry as a nonscientific way to understand reality. Unfortunately, these discussions are very brief. I would have liked more discussion on how the arts relate to his typology, or a broader typology such as models of the relationship between culture and Christianity.

Finally, Messer offers suggestions for how to use this book, either as a means to evaluate, clarify, and categorize other works, or to write a new one. Naturally,

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I evaluated my own recent work on causation and discovered that although my intent was more Type 3, I ended up perhaps closer to Type 4! It will be interesting to see how others apply Messer's typology.

Although I appreciate its brevity, I would have read this book even if it were longer! I do wonder if some topics could have been addressed with greater detail, and if other topics, such as technology, creation care, or astrobiology could have been included. Nevertheless, *Science in Theology* offers a very helpful new framework for conceptualizing the dialogue between the two subjects as well as providing an excellent introduction to some contemporary issues, suitable for students or for the nonspecialist looking to further his/her education on the topic.

Reviewed by E. Janet Warren, Past President of the Canadian Scientific and Christian Affiliation.

THE DOCTRINE OF CREATION: A Constructive Kuyperian Approach by Bruce Riley Ashford and Craig G. Bartholomew. Downers Grove, IL: IVP Academic, 2020. 366 pages, appendix, bibliography, index. Hardcover; \$50.00. ISBN: 9780830854905.

This book is a welcome addition to our need for more work on the doctrine of creation. The authors, one Baptist (Ashford) and one Anglican (Bartholomew), offer what they term a "Kuyperian" or Dutch neo-Calvinist perspective (perhaps more properly, neo-Reformed?). They seek to be exegetical, not merely creedal, in their exposition. In 366 pages of text, they offer a doctrine of creation that comprehends the classical loci and add some of more recent concern.

The authors cover the classical loci in a systematic, well-organized way. In the first, creedally based, chapter, they lay out their approach and orient readers to their exposition of the doctrine. The following two chapters provide a brief but very well-done history of the doctrine. In the chapter from the early church up to the modern period, they survey the teachers of the church, with Irenaeus holding pride of place. This survey touches on the right people and draws out the constructive contributions that each makes. The only group that is treated almost entirely negatively is, predictably, the Anabaptists (pp. 66–68). The authors select negative examples, confuse an Anabaptist doctrine of the world with a doctrine of creation, and make tendentious use

of selective quotes. It's hard to credit Anabaptists with a denigration of creation (or earthly matters) when they have well-formed practices of communal life, the sharing of goods, and, to be anachronistic, a thoughtful political theology rooted in particular practices of pacifism. Anabaptists are far from perfect, but they do not lack a doctrine of creation. It's just not one that's discernible through Dutch neo-Calvinist eyes.

The following chapter is an insightful tour of some highlights of the Modern Period with welcome attention to the wrongly neglected Johann Georg Hamann (pp. 75–80). In a clear and concise account of interpretations of Genesis 1 and the entanglement of God, creation, and science, Ashford and Bartholomew describe five positions that depend on "the conclusions of modern science" (p. 98). They then espouse a "literary framework theory" represented by Lee Irons and Meredith Kline, which argues that Genesis 1 reveals "three creation kingdoms" (days 1–3) and "three creation kings" (days 4–6). The picture is completed on day 7 when "God establishes himself as King on the Sabbath" (p. 98). This is filled out in the authors' later chapter on Genesis 1: the three creation kingdoms are "light; sky/seas; land/vegetation;" the three creation kings are "luminaries; sea creatures/winged creatures; land animals/men" (*sic*, pp. 155–70). This chapter concludes with a foundational assertion:

In the twenty-first century, a full-orbed Irenaean doctrine of creation presents itself as a salient remedy for the ills of our modern and postmodern eras ... Among Christian traditions in the modern period, the Dutch neo-Calvinist tradition is, in our opinion, particularly fruitful in providing resources for a recovery and renewal of the Irenaean doctrine of creation. (p. 99)

Following from this, the authors "outline the broad contours of the neo-Calvinist view of creation in seven propositions ..." (p. 103). Most of these propositions are familiar and commonplace within Christian orthodoxy. But two require further comment. The sixth proposition states that "*sin and evil cannot corrupt God's good creation structurally or substantially*" (p. 102; italics theirs). There may be profound truth in this, but the question of corrupt structures must be clarified. How does a "Kuyperian approach" empower a critique of injustice and oppression in, for example, the over-familiar case of apartheid?

The concept of incorruptible structures cries out for further elucidation and glaring warnings against its abuse. The seventh proposition states that “*God’s restoration of creation will be an elevation and enhancement of creation in its original form*” (p. 102). Here the language seems to fall short of a full-orbed Irenaean doctrine of creation. Isn’t God’s restoration the *fulfillment and completion* of creation?

After these first chapters that establish the direction and tone for the book, the following chapters are remarkably comprehensive in doctrinal coverage and practical import. Most of the ground covered is traditional, but the authors’ discussions are lively and well argued. They proceed mostly by engaging the works of others, so readers of these chapters will receive an education in the scholarly world of the doctrine of creation. One welcome contribution, among others, is an entire chapter devoted to “The Heavenly Realm,” which retrieves this inescapable biblical teaching and guards against “over-spiritualizing” (pp. 202–22).

Throughout the book, the authors maintain their commitment to biblical exegesis. They do this through engagement with the work of other scholars, which occasionally threatens to overshadow the biblical text itself. Like the rest of us heirs of modernity, they struggle to achieve what Oswald Bayer says of Hamann: “Scripture interprets me and not I scripture” (p. 77). Still, their determination to be faithful to the biblical narrative as they “do theology” is one to emulate.

Their commitment to exegetically grounded theology is fully displayed in a chapter devoted to Genesis 1. As they engage critically with other scholars, they lay out the foundations of their doctrine of creation. The chapter concludes with an exposition of creation order in the Kuyperian tradition. For the authors, “Creation order is good news!” (p. 173), allowing for the flourishing of life. Injustice only appears against the backdrop of this order. They conclude the chapter with one of their many in-text excurses, asserting that “at the heart of the biblical metanarrative stands the cross, which alerts us to the grace of the biblical story and its resistance to violent coercion” (p. 174).

Here, a number of questions arise. How can the crucifixion of a Galilean peasant on a hill outside Jerusalem sometime around AD 33, be part of a

metanarrative? Doesn’t its particularity preclude that? Don’t we need some other language? Would “Christ is Lord” suffice? How might their account of creation order change if the crucifixion was indeed at the heart of their account? Are there forms of coercion that are not violent? If so, does the biblical story resist those? Is “resistance” strong enough to represent the relationship between the story and violence?

The following chapter, “Place, Plants, Animals, Humans, and Creation,” covers a wide range of topics grounded in exegetical theology that leads to changed disposition. This excellent chapter brings together all the strengths of the book: its biblical exegesis, theological maturity, and practices grounded in the first two.

In the chapters that follow, Ashford and Bartholomew cover a lot of ground and give direction from “the Kuyperian tradition.” This is evident in their discussions of sin, common grace, culture making, and providence, among other things. Culture making (in chapter 9, “Creation and Culture”) takes on particular importance in their account. It occurs in “spheres” that “have their own integrity and function according to unique, God-given principles” (p. 267). But like some of their earlier accounts of creation order, true relationality is mostly missing. Culture doesn’t occur in spheres; it occurs in messy, boundary-crossing relationships between God, humans, nonhuman creation, and self. Yes, God is sovereign over all of life, but it is a relational sovereignty, not a spherical and principled sovereignty. Moreover, one could easily conclude that culture making, as in the Kuyperian tradition, is the main calling of human beings. Missional witness to Jesus Christ by the body of Christ is offstage. It is possible to see the so-called cultural mandate of Genesis 1:26–31 as our missional mandate, in which case the wholistic calling envisioned by a “cultural mandate” is really a full, biblical practice of the missional mandate of Genesis 1. The calling is lived out in the healing of relationships under the condition of fallenness through the crucifixion of the one “through whom and for whom all things have been created,” and in obedience to the Great Commission and Great Commandment.

Perhaps one striking indication of the absence of a robust account of relationality is the rare appearance of the Holy Spirit in the book, especially a book that aspires to be trinitarian. This may also account for

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the relatively minor role that the people of God play in the authors' exposition.

Even in a lengthy review such as this, I have not adequately represented the breadth and depth of this book. The authors manage to comment, often at length and in depth, on an enormous range of life, which, of course, the doctrine of creation comprehends.

My criticisms of this book (I have more!) are a sign of my deep respect for and learning from Ashford and Bartholomew. Critical matters for the life and witness of God's people are at stake in the development of a mature, robust conversation about the doctrine of creation and living it out. Bruce Ashford and Craig Bartholomew articulate a mature, robust, Irenaean doctrine of creation reshaped by Dutch neo-Calvinism that should be a part of a larger conversation and urgent action as we seek to bear witness to the One Creator and Redeemer in these times.

Reviewed by Jonathan R. Wilson, PhD, Senior Consultant for Theological Integration, Canadian Baptist Ministries; and Teaching Fellow, Regent College, Vancouver, BC V6T 2E4.

RAMIFIED NATURAL THEOLOGY IN SCIENCE AND RELIGION: Moving Forward from Natural Theology by Rodney Holder. New York: Routledge, 2021. 244 pages. Hardcover; \$160.00. ISBN: 9780367373191.

"Natural theology" is the study of what can be learned about God from a consideration of the universe of nature, and it has often been used to support claims of God's existence. The theologian Richard Swinburne applied Bayesian probability theory to various aspects of natural theology in order to present a justification for God's existence that could be evaluated numerically. Such a method has a certain objectivity about it, he felt. Moreover, it can be applied further to support the specific claims of the Christian faith through a similar treatment of historical facts given in the Bible. This latter effort he called "ramified natural theology," and it is the subject of the present book by Rodney Holder, who held a DPhil from Oxford in astrophysics before being ordained into the Anglican ministry.

This approach to Christian teaching is to be contrasted with those that are based on taking the scriptures as doctrinally authoritative in themselves, as exem-

plified by the position of Karl Barth. With ramified natural theology, the scriptures must be regarded as historical documents written in good faith by the authors of the time—just as any historian would normally assume about any historical documents—but with the proviso that supernatural events such as miracles are to be accepted as possible. That is something that academic historians will not allow, and it marks a key difference between the two disciplines. Arguing from a historic basis of the scriptures is, of course, not new. What is more innovative is to combine this with a consideration of natural theology, and to use a common analytical technique such as Bayesian theory to assign overall probabilities to the truths of central Christian beliefs.

Bayesian probability theory is a well-established technique. A good illustration would be of a doctor who is visited by a patient displaying symptoms that could come from one of several diseases. But which one? It is known from published statistics what is the a priori probability for a given citizen to have each of these diseases, and the probability for each of them to give the reported set of symptoms. From this information, the doctor can multiply the numbers together to obtain the relative probabilities that the patient has each of the possible diseases. The Bayesian formula allows the doctor to quantify the relative importance of each symptom and find the most likely diagnosis.

This approach can also be used to give believability estimates for more-abstract propositions. For each alternative proposition under consideration we must propose an a priori believability, taken to resemble a probability. We then consider the likelihood that each of the propositions could give rise to a set of given observations, and we finally apply the Bayesian formula. This may persuade us that one initial proposition is much more believable than another, but it does depend on the formation of numerical estimates of believability. These might be objective numbers that we do not know very well, or they may be intrinsically subjective in nature. It seems to me that the most important cases are unavoidably subjective, but quantifying one's degree of belief may be helpful in order to make progress.

Holder applies this type of analysis to the philosopher David Hume's skeptical evaluation of miracles.

Hume argued that for a reported miracle, the proposition that it is mistaken is always more probable than the proposition that it is true—but we can put some numbers into this. Suppose that there is testimony T that a given miracle M has occurred, and that God G is proposed as the source of this miracle. Holder calculates a formula which I write here (slightly re-expressed) in order to give a flavor of the contents of the book:

$$P(G|T) = P(G) \{P(M|G) + P(T|\sim M)\} \\ / \{P(G)P(M|G) + P(T|\sim M)\}.$$

This is to be interpreted as saying that the probability that God is the source of the miracle as attested, $P(G|T)$, is to be evaluated in terms of three quantities: the a priori likelihood of God's existence, $P(G)$, the probability that God will perform this miracle, $P(M|G)$, and the probability $P(T|\sim M)$ that this testimony will be obtained when such a miracle did *not* occur (Hume's mistaken testimony). These numbers are clearly uncertain, but if we are sufficiently confident in the smallness of $P(T|\sim M)$, and are willing to believe that God may perform miracles, then even a small initial belief in God can be enhanced by a large numerical factor by the testimony of the miracle.

Holder begins his account by discussing the natural theology of God as the First Cause of the universe and of its apparent physical fine-tuning to give intelligent life. Fuller accounts of these subjects have been given elsewhere (including in my own book) and can be referred to. Holder is concerned to provide enough information to justify the application of the Bayesian method to support a proposed belief in God, but most chapters in the book use Bayesian method to support belief in the Christian teaching of the death and resurrection of Jesus, using as factual evidence the material recorded in the Gospels and in other places. Extremely high levels of credibility can be claimed using this method, which can be combined with the natural theology arguments. Holder argues that the conclusions follow convincingly even when the assumptions and numerical probabilities that are used are allowed to vary considerably.

There are, however, some deficiencies in the Bayesian method that may impede its use. It might be questionable, as Holder accepts, to take the different pieces of evidence for the Resurrection in the New Testament as independent witness accounts. This

they probably are, I would happily agree, but a determined skeptic might want to write off entire accounts at one go. After all, the later church had no hesitation in dismissing the so-called apocryphal gospels—for good reasons, needless to say—but we must be justly confident that the accepted gospels are the genuine article. Since the main reason that skeptics usually have for doubting this is that they disbelieve the contents, their argumentation may often seem circular. Holder is quite good at rejecting the methodology of skeptical scholars such as Bultmann.

A more serious problem is that the Bayesian method *cannot convince the total skeptic*. That is, if someone's initial belief value of a proposition is zero, then multiplying this value by a large numerical Bayesian factor will still give zero. For this reason, as Holder states but perhaps not strongly enough, the employment of another method such as "inference to the best explanation" may be indispensable. In this way, one might perhaps convince the skeptic to accept some kind of nonzero likelihood of God after all, and then the Bayesian method may help—at least to make it clear that evidence can indeed be cumulative and can be used to give ordered reasons for belief when strong enough. But the total skeptic may require a different kind of approach. Hume simply disbelieved in miracles. There are people today who likewise disbelieve in miracles, and there are those today who would likewise reject them "on principle," whatever the evidence presented.


Even with these reservations, the Bayesian method provides a healthy contrast to the kind of vagueness that often seems to beset theological discussion. It proposes attributing defined numerical values to all quantities and evaluates their consequences. Even if the reader is unconvinced by the method's claimed precision, it does at least give a clear indication of where a well-specified argument is capable of leading.

Even without the Bayesian aspects, the book is useful in collecting together quite a lot of material that is relevant for presenting the Christian faith. I would, however, point to two areas that are not very well covered. One is the entire topic of biological evolution, which has been the subject of so much familiar controversy and really needs a bit of clear discussion to decide whether it adds to the natural theology. The other is that incidental textual details found in

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the New Testament are themselves capable of adding considerably to our belief in the documents' historical authenticity. F. F. Bruce and, more recently, Peter Williams have published accessible studies of this, and it is an area that strongly merits being taken into consideration.

Throughout the book Holder's writing is clear and readable, although some of the on-the-fly references to various philosophers and theologians might frustrate a beginner. One must digest a fair bit of mathematics at the level illustrated above. It seems to me that, on the whole, the book is a graduate-level text whose hefty price-tag (even the e-version is not inexpensive—\$48.95) will deter many potential readers. Still, within its given remit and despite a few limitations, the book does a good job. It can be well recommended for theological libraries and researchers in the area. I suspect, however, that the conclusions may need to be de-mathematized a little in order to convince ordinary citizens.

Reviewed by Peter J. Bussey, Emeritus Reader in Physics at the University of Glasgow, Glasgow G12 8QQ, UK. 

Letters

Expanding Isaac's Concluding Statement

In the article entitled "The Significance of *The Mystery of Life's Origin*" (PSCF 73, no. 3 [2021]: 158–62), Randy Isaac gives a very thorough, critical review of the two books on intelligent design (ID) by Charles B. Thaxton and others: the first published in 1984,¹ and its most recent edition with updates, published in 2020 by the Discovery Institute.²

At the conclusion of the article, Randy contends that "Origin-of-life research offers no compelling apologetic either for or against a Creator." That is well and good, but not surprising. Arguments from the mysteries of nature alone, be it origin-of-life, fine tuning of the universe, complexity of the structure of living cells, or others, are necessary arguments for a Creator, but they are not sufficient, ergo not compelling.

I wish Isaac had added to his above concluding remark, the statement that there are other evidences

that are necessary to make the argument of a Creator compelling.

We all know that in addition to the evidence from the physical world, we have evidence, for example, from human nature, from history and archeology, and from scripture and the person of Jesus Christ. Only when put together can these make the argument of a Creator compelling.

Each of the above evidences, starting with evidences from the physical world pointing to a Creator, form a single string which is necessary, but it can be broken by a counter argument unless the strings are all wound together to form a strong rope and thus make a compelling apologetic case. If the various strings of evidence are wound together, they would fulfill the case of a necessary and sufficient condition for the existence of a Creator.³

As an obvious illustration, Nobel Laureate and brilliant physicist Steven Weinberg (recently deceased), vehemently denied the existence of God all his life, whereas another Nobel Laureate, Eugene P. Wigner, gave credit to a Creator based on laws of nature in his lectures on quantum mechanics, when I was a graduate student at Princeton.

Notes

¹Charles B. Thaxton, Walter L. Bradley, and Roger L. Olsen, *The Mystery of Life's Origin: Reassessing Current Theories* (New York: Philosophical Library, 1984).

²Charles B. Thaxton et al., *The Mystery of Life's Origin: The Continuing Controversy* (Seattle, WA: Discovery Institute Press, 2020).

³See Kenell J. Touryan, *A Cord of Multiple Strands: An Evidence-Based Assessment of Christian Truth Claims* (Holland, MI: Black Lake Press, 2011).

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The Mystery of Life's Origin: Know Thyself

Randy Isaac, in "The Significance of *The Mystery of Life's Origin*" [MLO] (PSCF 73, no. 3 [2021]: 158–62), provides a strong case for the failure of MLO-1¹ and MLO-2² to suggest, from the scientific work dealing with the origin-of-life question, the metaphysical implication for the existence of an intelligent designer. This is quite important since the MLO-1 book laid the foundation for the rise of the intelligent design movement.

Richard Bube³ emphasizes that scientific models are descriptive and not prescriptive. In describing nature by means of mathematical models, Einstein said, “Everything should be made as simple as possible, but not simpler.” Models can predict new results that may later be confirmed by observation or experiment. However, models are like maps of cities, helpful, but not actually the cities themselves.

It should be remarked that mathematical models, for example, Dirac’s relativistic theory of the electron, could not bring electrons into being. In fact, no scientific theory whatsoever can bring anything into being. This is obvious, since the notion of existence is not in the subject matter of the physical description of nature, namely, science. The ontological question of existence is solely the purview of metaphysics and theology. In science, one must first postulate a particular metaphysics in order to carry on the scientific enterprise.

In order to obtain a complete description and understanding of the whole of reality and to include a true description of what a human being is and what the totality of the human experience is, one must integrate science with a particular theology. However, which theology or religion should we use? As done in science, one must choose the theology that has the highest explanatory power—namely, by applying the principle of parsimony, Occam’s razor.

The inscription “Know Thyself” was carved on the stone entrance to the Temple of Apollo at Delphi, Greece. Scholars, philosophers, and civilizations have debated this question for a long time. A theist follows the ancient Greek injunction by basing it on the knowledge of God—namely, who God is and what his commandments are. However, a Christian must know not only God and his commandments, but also who Christ is and what he accomplished on the cross. Accordingly, science alone can give an accurate physical description of humans; however, science, together with the Christian faith, gives the complete and the true picture of what human beings are.

Notes

¹Charles B. Thaxton, Walter L. Bradley, and Roger L. Olsen, *The Mystery of Life’s Origin: Reassessing Current Theories* (New York: Philosophical Library, 1984).

²Charles B. Thaxton et al., *The Mystery of Life’s Origin: The Continuing Controversy* (Seattle, WA: Discovery Institute Press, 2020).

³Richard H. Bube, *The Human Quest: A New Look at Science and the Christian Faith* (Waco, TX: Word Books, 1971), 65.

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Evidence for Genesis Historicity

Regarding Carol Hill’s article, “Original Sin with Respect to Science, Origins, Historicity of Genesis, and Traditional Church Views” (*PSCF* 73, no. 3 [2021]: 131–44), Genesis contains numerous clues that underscore the validity of the Genesis account as a fairly accurate narrative of the beginnings of the Semitic peoples, and that help pinpoint the time and place where Adam and his family resided. Genesis 2:10–14 focuses on southern Mesopotamia where the covenant family lived until the flood. The oldest city in that region dated by archaeologists to 4800 BC is Eridu.

Archibald Sayce (1845–1933) was a famous British Assyriologist and linguist, who held a chair as Professor of Assyriology at the University of Oxford from 1891 to 1919. He spent countless hours in the British Museum transcribing ancient texts from the Near East. In his *Lectures on the Origin and Growth of Religion* (1880), he stated: “Babylonian tradition places the Garden of Eden near Eridu.”

At the ASA Annual Meeting in Colorado in 2017, I presented a talk on commonalities between the Genesis 5 patriarchs and the Sumerian King List (SKL). In that talk, evidence was presented to show that the last three names recorded in Sumerian in the pre-flood portion of the SKL, ending with Ziusudra, most probably were also the last three pre-flood patriarchs—Methuselah, Lamech, and Noah. Even the seventh patriarch, Enoch, who “walked with God” in Genesis 5:24, has been linked with the seventh king, Enmeduranki, who according to legend was taken by the gods and taught “divine mysteries.”

The pre-flood part of the Sumerian King List also begins at Eridu, modern Abu Shahrein in Iraq. These are some of the names on the list recorded in the Sumerian language: Enmenluanna, Enmengalanna, Ensipadzidana, and Enmenduranna. The En- prefix designates kingship in both Akkadian and Sumerian.

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Note that Adam's two grandsons have the same designation indicating they were kings—Enoch for whom the city was named, and Enosh. Finding the city where Enosh might have reigned requires a bit of sleuthing.

When Cain committed a foul deed and got the boot from Eridu—where Adam lived after he too was booted from the Garden—Cain needed a place that contained a small population of Ubaidans where he could find a wife and build a city. Ubaid pottery remains also were found at the lowest level at Eridu. The “land of Nod” has not been found, but the city of Enoch still exists today as modern Warka located less than 60 miles north of Eridu as you go along the Purrettum/Eridu canal, linking the two cities.

The SKL relates that after the first two kings reigned at Eridu, “Eridu was smitten with weapons,” and kingship then rested in the victorious city, Badtabira. If true, this could indicate a departure for the remainder of Adam's children beginning with Enosh who could begin his reign in the neighboring city of Erech (Sumerian Uruk) that became part of Nimrod's kingdom in Genesis 10:10.

This appears in the epic tale, Enmerkar and the Lord of Aratta: “My sister, let Aratta (biblical Ararat) fashion gold and silver skillfully on my behalf for Unug” (the people of the city of Enoch). Enmerkar further describes this city as a twin city (Unug Kulaba) which would put Enoch and Erech (Sumerian Unug and Uruk) side by side which would explain similarities in the names of Cain's and Seth's immediate descendants.

One can question the validity of the king list and the validity of Genesis, but they are mutually supportive even down to the last king listed before the “flood swept thereover,” Ziusudra listed in W-B 62. And the Sumerian legend of Ziusudra tells the story of the flood.

Dick Fischer
ASA Member



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f. Total Distribution (Sum of 15c and 15e)		1153		1149	
g. Copies not Distributed (See Instructions to Publishers #4 (page #3))		57		46	
h. Total (Sum of 15f and g)		1210		1195	
i. Percent Paid (15c divided by 15f times 100)		94.71		94.60	
o. Electronic Copy Circulation		Average No. Copies Each Issue During Preceding 12 Months		No. Copies of Single Issue Published Nearest to Filing Date	
a. Paid Electronic Copies		234		243	
b. Total Paid Print Copies (Line 15c) + Paid Electronic Copies (Line 16a)		1326		243	
c. Total Print Distribution (Line 15f) + Paid Electronic Copies (Line 16a)		1387		1392	
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