



## HISTORY OF SCIENCE

**NEWTON THE ALCHEMIST: Science, Enigma, and the Quest for Nature's "Secret Fire"** by William R. Newman. Princeton, NJ: Princeton University Press, 2019. xx + 537 pages, including four appendices and an index. Hardcover; \$39.95. ISBN: 9780691174877.

If there is one person associated with developments in the physical sciences, it is Isaac Newton (1642–1727). For many, he represents the culmination of the seventeenth-century Scientific Revolution: its point of convergence and simultaneously the point from which science began to exercise its full influence on society. His work is often considered as thoroughly modern: well-designed experiments; precise and clearly articulated mathematical-physical principles which invite deductions further tested by measurement and experiment; and great discoveries in astronomy (universal law of gravitation), in optics, in mechanics, and in mathematics (the calculus). For many, Newton provided the model for physical theory for the next two hundred years.

And yet, this generally accepted description of Newton fails to capture the tension and diversity in Newton's work. The discovery of Newton's alchemical manuscripts (containing no fewer than one million words) by the economist John Maynard Keynes at an auction at Sotheby's in 1936 partially lifted the veil. In 1947, Keynes offered his rather candid assessment of Newton's alchemical work: he "was not the first of the age of reason" but rather "the last of the magicians."

However, in the last two decades, we have come to understand and appreciate that alchemy was not simply deviant behavior by "magicians" or charlatans, but rather part and parcel of the make-up of the Scientific Revolution. Alchemy, or better, chymistry, was a central part of the early modern study of nature. One of the leaders of this historiographical revolution has been William Newman, distinguished professor in the Department of History and Philosophy of Science and Medicine at Indiana University. [For more on this revolution, see my review of Lawrence Principe's book *The Secrets of Alchemy* in *PSCF* 66, no. 4 (2014): 258–59.] Newman has written several seminal books: for example, *Atoms and Alchemy: Chymistry and the Experimental Origins of the Scientific Revolution* (2006) and *Promethean Ambitions: Alchemy and the Quest to Perfect Nature* (2004).

*Newton the Alchemist* displays Newman's fifteen-year dedicated study of Newton's alchemical manuscripts. This is the book for anyone who wishes to understand the background, implementation, and experimentation characteristic of Newton's long and abiding interest in alchemy. Newman introduces us to a Newton who wished to be an adept alchemist (even as a student at the Free Grammar School in Grantham) and kept the alchemical fires burning throughout his life, not only

in Trinity College at Cambridge University, but also as warden of the Royal Mint. Newman also shows that alchemy is not inherently unscientific or irrational, nor that Newton was an outlier. Such contemporary luminaries as Robert Boyle, Gottfried Leibniz, and John Locke were also involved in alchemical endeavors.

In the first chapter, "The Enigma of Newton's Alchemy: The Historical Reception," Newman addresses the claims of two of Newton's most illustrious interpreters: Richard Westfall and Betty Jo Teeter Dobbs. For Dobbs, Newton's belief in alchemical transmutation was a religious quest, with the "philosophic mercury" acting as a spirit mediating between the physical and divine realms. For Westfall, Newton's alchemical research, involving invisible forces acting at a distance, allowed him to develop his theory of universal gravitation, published in the *Principia* of 1687. Newman calls both claims into question based on his close reading of the extant alchemical papers, many of which Dobbs and Westfall were not able to see. Newman wishes to determine the "hidden material meaning of the text" (p. 46), rather than advance any broad metaphysical or soteriological claims on Newton's part.

In chapter 4, "Early Modern Alchemical Theory," Newman reveals how heavily influenced Newton was by European alchemists, above all by the Polish alchemist Michael Sendivogius. Drawing on their experiments, Newton, in the 1670s, developed an all-encompassing geochemical theory of nature, according to which the earth functions as "a 'great animall' or rather an 'inanimate vegetable'" (p. 64). In Newton's view, this process explained gravitation (among many other things), although he would abandon this idea when he came to write the *Principia*.

In collaboration with others, many at Indiana University, Newman has organized, read, and carefully compared Newton's alchemical manuscripts. [Readers can see the results at [www.chymistry.org](http://www.chymistry.org).] In his analysis, Newman employs an approach which he calls "experimental history." This involves at least two elements: (1) a careful textual linguistic analysis of alchemical manuscripts and their experimental details; and (2) an effort to repeat the experiments in a modern laboratory setting. To understand alchemical manuscripts is indeed a challenging undertaking involving an understanding of "materials, technology, and tacit practices," as well as deciphering "hidden terms or *Decknamen*" used for chemical substances, and the intricate symbols employed to designate them (see "Symbols and Conventions," pp. xi–xvii).

Newman repeated many of Newton's experiments, revealing many of his laboratory practices for the first time. The results are sometimes spectacular (see, for example, the colored plates 4–10 between pages 314 and 315). They clearly show how dedicated Newton was in his efforts to improve his knowledge of the natural world. Newman's final assessment: "Nowhere in

Newton's scientific work can we see the same degree of combined textual scholarship and experiment that we encounter in his alchemy" (p. 498).

What may we learn from reading *Newton the Alchemist*? One thing for sure: that our contemporary scientific textbooks and enlightened culture celebrating Newton's "positive" results—the astronomical "System of the World" and his three laws of motion in mechanics—are a one-sided picture of Newton's work and life. By blithely neglecting his interests in alchemy, cabbalism (number mysticism), theology, chronology, and biblical prophecy, as well as Newton's deep sense of vocation (calling), they all too frequently divide his work into two predetermined categories: science and pseudo-science. It is certain that Newton's alchemy is not pseudo-science. History, and scientific practice as well, are never, if ever, so tidy. Newton's passionate pursuit of a coherent worldview is a reminder to us of the rich context in which science is embedded. Newman's book underscores the fact that science, our science too, is impelled by deep commitments, social and political factors, and personal ambition and motives.

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**NEGOTIATING SCIENCE AND RELIGION IN AMERICA: Past, Present, and Future** by Greg Cootsona. New York: Routledge, 2020. 206 pages + index. Paperback; \$44.95. ISBN: 9781338068537.

In *Negotiating Science and Religion in America: Past, Present, and Future*, Greg Cootsona examines the history of religion and science in America in the context of emergent adulthood. He begins with Alfred Whitehead's claim that religion and science are the two strongest cultural forces within American culture, with the future of America being dependent upon the cultivation of a positive relationship between them. Much of the book is a historical exploration of the relationship between religion and science in American culture framed by the categories put forth in Ian Barbour's *Issues in Science and Religion*: conflict, co-existence, dialogue, and integration—although Cootsona chooses to collapse dialogue into integration. While he finds Barbour's typology helpful, Cootsona sees the need for new categories to better reflect the experience of millennials living within the pluralism of the twenty-first century.

Cootsona argues that Protestantism, as the dominant religious force within American culture, contributed to the conflict/co-existence approaches to science and faith throughout much of American history. This situation has now given way to a religious pluralism that makes new forms of integration possible. However, given the increased secularity of millennials and emergent adults, which Cootsona supports with Pew research, the National Study of Youth and Religion, as well with his own qualitative research, this new form of integration is less about a robust dialogue between science and

religion, and more about the manifestation of a tolerant individualism seeking to avoid conflict. According to Cootsona, "As Americans become less conventionally religious, they also become less personally conflicted with science" (p. 163). This explains why Barbour's typology needs to be reworked—as emergent adults disassociate from organized religion, the categories that frame the relationship between science and religion must change. For Cootsona, emergent adults are "religious bricoleurs" who need better maps to frame the conversation in order to discover new trajectories.

The first two-thirds of the book represent the author's version of the map. He divides American history into sections, tracing the relationship between religion and science from Newton to Barbour, with a final chapter focusing on future possibilities. In this way, he models the mapping needed for the future of the religion/science discussion. He provides an insightful historical narrative that describes developments within the religion/science relationship, ending with contemporary models of Barbour's typology—Stephen Jay Gould (co-existence), Richard Dawkins (conflict), and Francis Collins (integration). The final chapters explore the shifting religious experience of contemporary American culture that has seen a decline in religious affiliation, the rise of spirituality, and a new cultural and religious pluralization. Cootsona's historical narrative provides a helpful snapshot of the complicated relationship between religion and science in America. His interdisciplinary focus offers an important lens for interpreting the historical events and movements, providing a helpful model of the mapping that he believes is necessary for emergent adults living in a pluralistic culture, to better engage the conversation. There are, however, a few critiques to consider.

Cootsona's portrayal of Barth's theology follows a predictable, but unfortunate, trajectory. He refers to Barth's opposition to "natural theology" in a way that suggests a lack of concern for science. A close reading of *Church Dogmatics* Book III, however, shows how Barth views the incarnation as the basis for affirming and encouraging scientific exploration. For Barth, this is not merely co-existence, as Cootsona seems to suggest; instead, it is the instance that the revelation of God's love for the world in Jesus Christ affirms every opportunity to learn more about God's good creation through scientific inquiry. Barth writes to his niece,

Thus one's attitude to the creation story and the theory of evolution can take the form of an either/or only if one shuts oneself off completely either from faith in God's revelation or from the mind (or opportunity) for scientific understanding. (*Karl Barth Letters: 1961–1968*)

Barth embraces evolutionary theory, but he strongly opposes any form of human knowledge morphing into a dominant ideology. Cootsona's dismissal of Barth misses an opportunity for a much more robust theological engagement of science that moves beyond

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a “two books” paradigm, to an integrative approach. Barth’s concern with natural theology is in opposition to ideology wherever it is found—be it religion or science. Both liberal theology and fundamentalism are guilty of fostering unhealthy ideological paradigms that short-circuit dialogue. This is central to the conflict with science within contemporary white evangelicalism as they are much more concerned with maintaining political power and social status than having honest discussion about faith and science. The evangelical opposition to science—including issues related to the current pandemic—has less to do with theology or science, and more to do with ideological forces that maintain the cultural status quo. The politics of science and religion, which Cootsona alludes to in his account of the Scopes trial, deserves much more attention.

Finally, there is the absence of contemporary scholarship that might support his project. While Charles Taylor is Canadian, his monumental work *A Secular Age* provides important insight into the rise of secularity in the West, including American culture. Taylor demonstrates how the shift in social imaginary that results from the Reformation creates the cultural conditions in which the scientific revolution and the rise of fundamentalism are possible. A primary focus of his work is to explore the conditions that lead to the current emphasis of spirituality over traditional forms of religion, which is the experience of emergent adulthood. Similarly, both J. Wentzel van Huyssteen (*Alone in the World? Human Uniqueness in Science and Theology*) and Ilia Delio (*The Unbearable Wholeness of Being: God, Evolution, and the Power of Love*) offer important insights for the faith and science conversation that address the contemporary experience of emergent adults in America.

Overall, Cootsona’s book is an important contribution to the conversation about science and religion. He provides a creative interdisciplinary approach that helps religious communities as they engage scientific questions. As a practical theologian, this interdisciplinary approach, along with his desire to articulate new models for an increasingly pluralistic and secular American culture, provides important steps toward the cultivation of meaningful conversations between religion and science.

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**SCIENTISM AND SECULARISM: Learning to Respond to a Dangerous Ideology** by J. P. Moreland. Wheaton, IL: Crossway, 2018. 224 pages. Paperback; \$16.99. ISBN: 9781433556906.

Early in his new book, *Scientism and Secularism: Learning to Respond to a Dangerous Ideology*, J. P. Moreland relates a story of a hospital stay. After telling his nurse that he earned his BS in physical chemistry, his ThM in theology, his MS in philosophy, and his PhD in philosophy,

she observes that he “had taken two very unrelated, divergent paths” (p. 23).

Before she could explain further, I asked if this was what she meant: I started off in science, which deals with reality—hard facts—and conclusions that could be proved to be true. But theology and philosophy were, well, fields in which there were only private opinions and personal feelings ... (p. 23)

In response, Moreland’s nurse looks surprised and acknowledges this “was exactly what she had in mind” (p. 24). Rather than supposing his interlocutor is simply a kind nurse hoping to move on to her next patient, Moreland instead interprets the position he articulates for her as illustrating that “scientism” is “the intellectual and cultural air that we breathe” (p. 24).

Scientism is the nemesis in Moreland’s book. He loathes it. But the precise definitional target of his loathing is not always clear. Early in the book, Moreland distinguishes “strong scientism” and “weak scientism.” Strong scientism claims “something is true, rationally justified, or known if and only if it is a scientific claim that has been successfully tested and that is being used according to appropriate scientific methodology” (p. 27). Weak scientism, by contrast, “acknowledges truth apart from science,” but “still implies that science is by far the most authoritative sector of human knowing” (p. 28). That’s a helpful distinction, even if it is doubtful whether many accept strong scientism (Moreland provides no examples), and depending on how one defines “authoritative,” it is also doubtful whether many people *reject* weak scientism. Having thus introduced the distinction, however, this nuance is often lost in the pages that follow, even in places where the clarity could have proved useful. More problematically, we never get a definition of what Moreland means by “science.” To his credit, Moreland defends the omission, claiming that science cannot, in principle, be demarcated from nonscience (pp. 160–63). Still, it is difficult to follow the implications of Moreland’s argument—effectively, an extended argument against scientism—without a working definition of what science is. Do only the hard sciences count? Or do the so-called soft sciences count as well? Or might empirical-leaning philosophy and theology and history count too? These distinctions are not readily available, and so it isn’t clear precisely what position Moreland is arguing against. It is clear only that Moreland really dislikes it.

When Moreland offers data to support his argument, the results are also disappointing. For example, while reflecting on the supposed conflict between science and religion, Moreland estimates

that 95% of science and theology are cognitively irrelevant to each other ... in that other 5% or so of science, there is direct interaction with Christian doctrine. Within this category, I would say that 3% of science provides further evidential support for Christian teaching ... that leaves 2% of current scientific claims that may seem to undermine Christian theology. (pp. 173–74, emphasis Moreland’s)

None of these data are cited. They instead appear to be precisely what Moreland says they are—Moreland shooting from the hip. Oddly, he includes a pie chart to illustrate his guesswork.

Worse than these eccentricities, Moreland regularly falls prey to the very kind of scientific thinking he decries. On one hand, he proposes that “[t]he primary academic disciplines suited to studying the nature of consciousness ... are biblical studies, theology, and philosophy of mind” (p. 85). This view, to be frank, seems rather idiosyncratic and is not one that many academics, including religious ones, would ascribe to. Theistic philosophers rarely lean on biblical scholarship in developing their views of consciousness. On the other hand, Moreland’s own variety of scientism appears in his defense of intelligent design, a position that accepts God’s direct action throughout evolutionary history. Moreland strongly endorses intelligent design understood this way. Moreover, he emphasizes that we have scientific reasons to endorse the position:

intelligent design advocates believe that they can and have discovered scientific data that is best explained by an intelligent designer—the origin of the universe, life, consciousness, cases of irreducible complexity, and so on. (p. 171)

Understood in this way, intelligent design takes the hypothesis of an intelligent designer to be our best *scientific* explanation for a range of phenomena. Intelligent design thus stands against rival theistic accounts of evolution such as theistic evolution. Theistic evolution rejects the perspective offered by intelligent design, claiming that a creator is not best construed as a scientific hypothesis. Rather, according to theistic evolution, our reason to believe in God comes largely from nonscientific disciplines such as theology or philosophy. Accounts of creation such as theistic evolution are therefore comfortable with the claim that we can know about God as creator without requiring that this knowledge be distinctively scientific. For Moreland, by contrast, it seems God’s creative action is best understood as empirically detectable, and that science offers a privileged perspective on our knowledge of God as creator. In discarding rival theistic accounts in favor of his brand of intelligent design, Moreland thus seems to embrace the very kind of scientism he pleads with us to reject.

Do some of Moreland’s arguments land? Of course! Moreland is a professional philosopher with an impressive record. For example, his argument that scientism is self-refuting (p. 47–51) has strong moments: if scientism claims that science offers our *only* route to knowledge, then accepting that claim entails that we ought not accept scientism, since the position stakes a claim that can’t be scientifically verified. Of course, this kind of argument works only for a particularly strong version of scientism, one that resembles the discarded logical positivism of the early twentieth century more than the subtler kinds of scientism that are widely held today.

Likewise, some of Moreland’s arguments for the immateriality of consciousness (pp. 86–88), the cosmological argument (p. 133–39), and the fine tuning argument (pp. 141–47) track contemporary conversations, even if these arguments are more controversial than Moreland gives them credit for. The problem with Moreland’s book is not that it is completely devoid of clear philosophical thinking. The problem is that the wheat is mixed thoroughly with the chaff, and the two are difficult to separate.

Do we recommend the book? Not for the casual reader. Moreland’s book is misleading; dangerous for the believer in its mischaracterizations and simplifications, infuriating for the unbeliever in its handling of both science and religion. Importantly, we (the reviewers) agree on this despite coming from different places: one of us (Vukov) is a Catholic and philosopher; the other (Burns), an atheist and biologist. For the careful scholar, though, the book may be worth skimming, as a spur to more careful reflection. Whether scientism is true or false, it has wide-reaching implications. We agree that the subject merits a serious and careful book-length discussion. That’s just not what Moreland’s book delivers.

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**A WORLDVIEW APPROACH TO SCIENCE AND SCRIPTURE** by Carol Hill. Grand Rapids, MI: Kregel Publications, 2019. 240 pages. Hardcover; \$29.99. ISBN: 9780825446146.

On February 4, 2014, Bill Nye and Ken Ham debated matters of creation, science, and faith. Because this encounter pitted two very public figures against each other—a famous PBS personality and a very flamboyant creationist—this event was highly anticipated. Unfortunately, the results were frustratingly inconsequential. The debate, however, did crystalize the irritations that often gravitate around debates of science and faith. So often, the participants talk past each other instead of engaging each other. The person of faith will often lament the scientist’s narrow-mindedness and fallaciousness because they ignore variables valued by positions of faith. Conversely, the person of science will likely mock the faithful as naive simpletons who cling to their texts and ignore data that confronts their vested interests. Such tendencies are tragic since both sides perpetuate discord and prevent any substantive collaboration.

In the book reviewed here, Carol Hill offers another crack at navigating the chasm between science and the Christian faith. Thus, Hill’s work is not necessarily novel or innovative. And it is certainly not the first to

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boast an author who is globally accomplished in their field of scientific inquiry and a committed Christian (e.g., Francis S. Collins, *The Language of God* [New York: Free Press, 2006]). However, the potency of this book exists in how she allows the data points, both scientific and textual, to speak for themselves. To facilitate this, she employs a hermeneutical lens described as a “worldview approach.” While she struggles in the opening chapter to effectively articulate what this approach means, she ultimately does enough throughout the presentation to paint a picture of what she is utilizing. She describes an interpretive posture that adopts, to the extent that it can, an overarching conceptual framework born out of the authoring culture. Essentially, the claims of the biblical text need to be considered in light of an Iron Age, ancient Near Eastern society. Therefore, using the biblical text to answer specific questions forged out of modern scientific discussions is ultimately asking the text to bear a weight that it is not designed to bear. Rather, ancient Near Eastern texts, of which the Bible is one, are concerned with questions of function and order when speaking to fundamental realities of the cosmos, not questions of precise mechanisms and timelines. This allows Hill to responsibly summarize the Bible’s foundation that in turn informs specific convergences between science and scripture.

God/Christ is the creator of the universe and all that is in it, and by him all things consist (hold together). According to the Bible, the universe and life did not happen by chance, but was created, directed, and sustained by God. (p. 159)

This is an important premise. On the one hand, Hill’s work acknowledges a fundamental reality about scripture. It is a text that is ancient; therefore, it is influenced by conventions and assumptions very foreign to modern people on this side of the industrial and scientific revolutions. On the other hand, it frames discussions that may produce irenic debate between science and faith. Or, to put it another way, a worldview approach or anything similar, allows the text, along with its intentions, to define the boundaries of the conversation, and it is within these boundaries that scientific musings may flourish and inform the larger dialogue. If this sounds like a push to allow the text to take the lead in debates of science and faith, that is the suggestion. Christians believe that ancient Israel, with its experiences and authoritative texts (i.e., the Old and New Testaments), is a chief mechanism for communicating God’s cosmic intentions for humanity. Science has something to say, but it just doesn’t enjoy the level of sanction that the text does.

Nevertheless, Hill gets boxed in occasionally by her worldview approach. For example, “The basic premise of a Worldview Approach is that the Bible in its *original context* records historical events *if* considered from the worldview of the biblical authors who wrote it” (pp. 12–13, *emphasis original*). The implications of this statement unnecessarily complicate things. If one is committed to considering an author’s worldview,

cognitive framework, and ancient literary conventions when attempting to understand the claims of scripture, then one should allow ancient canons to dictate. This inevitably raises a question. To what extent are these literary accounts making claims about real people, space, and time? There is reason to believe, based largely on comparative analyses that pit ancient Near Eastern texts against the biblical texts of the same or similar genre, that Genesis 1–11 may be making nonhistorical (e.g., polemical) claims. Thus, is the pursuit of Eden’s location, or of a chronological context for Adam and Eve, or of the dynamics of a regional flood, really a moot point? Certainly, not all texts of Genesis are of the same ilk, for Genesis 12–50 is a different type than Genesis 1–11. But Hill stymies the possibilities of her own approach by a commitment to discussing everything historically.

I am a biblical scholar who is convinced that God sanctioned ancient Israel, with its Messiah and text, to be the authoritative channel for revealing his divine intentions. And so, I write this review with these confessions. Ultimately, I applaud Hill for her work. It embodies a balance that respects the Bible for what it is—a text given by an ancient society that enjoys divine sanction as God’s authoritative revelation while not being capable of precisely informing highly technical and nuanced issues illuminated by the developments of modern scientific research. I suspect that if both Nye and Ham had recognized this, the infamous debate of 2014 would not be another example of fruitless endeavors tarnished by entrenched rigidity, but rather it would stand as a watershed moment in irenic debate between traditional antagonists.

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**GOD’S GOOD EARTH: The Case for an Unfallen Creation** by Jon Garvey. Eugene, OR: Cascade Books, 2019. 209 pages. Paperback; \$30.00. ISBN: 9781532652011.

**THE GENERATIONS OF HEAVEN AND EARTH: Adam, the Ancient World, and Biblical Theology** by Jon Garvey. Eugene, OR: Cascade Books, 2020. 264 pages. Paperback; \$36.00. ISBN: 9781532681653.

Together, these two books endeavor to provide an interpretation to the Genesis creation accounts that sees them not only as historical but also coherent with modern scientific theories. The result is a proposal that initially appears coherent, drawing on Garvey’s extensive reading in many areas.

*The Generations of Heaven and Earth* (GHE) complements Joshua Swamidass’s *The Genealogical Adam and Eve*. Garvey explains that Swamidass’s premise is “that a historical couple living in the Ancient Near East, amongst an existing human population, at any time plausibly matching the biblical account, would *almost certainly* be common ancestors of everyone living in the world today” (xiii, *italics original*). At the same time,

GHE builds on *God's Good Earth* (GGE) which argues that “what happened to humankind in the garden did *not* spread to the rest of the world” (GGE, 4, italics original).

The two volumes contain a number of positives. Garvey displays a high view of the sovereignty of God and his relationship to the world. He argues strongly that God's creation is good and that humankind has a responsibility to take care of it. He highlights the need to accept the supernatural, including noting how the question of consciousness is more metaphysical than scientific, thus denying naturalism. He calls out science for its significant role in the abuse of the earth. He places Adam firmly in history. He distinguishes sin from evolution. He bases his high view of scripture on divine authorship, and notes how “the old critical consensus on the supposed literary disunity of the Old Testament” has failed. But, a closer reading of the books revealed several inconsistencies and raised several concerns, both biblical and scientific.

The basic premise of GGE is that the fall event in Genesis 3 affected only humankind and not the rest of creation. He divides the book into four sections. The first three use, respectively, biblical passages, Christian theologians throughout history, and science to show that creation not only was created good, but is still good. The fourth is application. Garvey's focus on substantiating that the current natural order is good (in a functional sense) seems overstated. While one would readily agree that there is much good about nature today, he explains away any passages that indicate otherwise, such as Romans 8. His view of science is complicated. He critiques the founders of the evolutionary hypothesis for not seeing anything wrong with nature (GGE, 72), but then blames all of the problems of nature on humans, beginning with the Mesopotamians; he places special onus on the scientific community for the “massive problems” it has created (GGE, 171-79).

While he strongly critiques evolutionary theory for its “hyperbolic expressions of the depravity and savagery of nature that have been with us since Darwin and tend to be taken as axiomatically valid” (GGE, xviii), he argues that God used the evolutionary process to develop the “natural order” spreading the development of life over 3.8 billion years. That he sees everything under the sovereign control of God who serves to bless or judge, suggests that God is behind all that we call evil, although Garvey tries to evade that by claiming nature “must surely be regard[ed] as ‘good,’ for it is utterly obedient to the will of its maker” (GGE, 8). He validates this several ways. First, he defines good not as a moral term, but functional (GGE, 34-35). Second, he cites Peter who was told not to “call anything impure that God has made clean” from Acts 10:13-15 (although Peter called the animals “impure” because God had declared them “impure” in Leviticus 11). Third, and most provocative, he argues that most living organisms

do not experience pain or suffering—this is something limited to humans. As such, carnivores do not cause suffering when they kill their prey, so this system can be viewed as good (GGE, 147-67).

Garvey argues that the early chapters of Genesis are “essentially historical” (GHE, 9), seemingly conflicting with his acceptance of the evolutionary hypothesis. His solution is a genealogical Adam (per Swamidass) which, he claims, “works with the usual scientific dating of the earth, and posits ‘natural humans’ living alongside, and long before Adam and Even (sic) in the Garden of Eden” (GHE, 52). In other words, mankind evolved per the standard paradigm, and after several hundred thousand years of development God selected one couple out of all who existed at that time and placed them in a garden called Eden. Given Swamidass, he suggests 4004 BCE. Taking Abraham as an example, Garvey labels Adam the “first father” of the human race solely on the basis of a covenant with God. Specifically, he says, “Adam was called to be the first instance of such a personal relationship with God, from an existing human race which might well have had all the features of a culture, and even of religious worship, though based on nature rather than revelation” (GHE, 123-27). Adam “sinned” as the representative head of that already-created human race (GHE, 110). Here Garvey seems self-contradictory. He argues that all of “mankind” who lived “before and alongside of Adam” was a “human race created in the image and likeness of God” (GHE, 116). Then he asserts that Adam differed from “non-Adamic” humanity outside the garden primarily because of the *imago dei*” (GHE, 132).

Noting Paul's theological argument that “it was necessary for all men to be ‘in Adam,’ before they could be ‘in Christ,’” Garvey maintains that a genealogical Adam and Eve would be ancestors of everyone who existed on the earth at Paul's time. So, he asserts, “Christ's coming for all humanity was, on that time scale, almost immediately after the time when all humanity became children of Adam” (GHE, 50-52). Given that genealogical conclusion, however, multiple generations between Adam and Paul, as well as multiple generations of “humans” asserted to exist prior to Adam, would *not* be descendants. He implies that, although in the image of God, they were not fully human since they did not have a personal relationship with God, although the original monotheism reported by Schmidt, Lang, and others could have applied to them (GHE, 133-46). Or, “in some way the blessings promised to Adam were intended to act retrospectively to those outside of the garden” (GHE, 145).

Given a long period of evolutionary preparation for Adam, Garvey concludes that Genesis 1 and 2 are sequential, producing a “second creation,” a matter of several concerns. First, this contradicts God's rest in Genesis 2:3. Second, Genesis 2:4 is not a sequential indicator. The Hebrew phrase *elle toledot* connects the

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two accounts. Although translated as “these are the generations” or “account” or something similar, recent scholarship concludes a better translation is “this is what became of.” Used throughout Genesis, this phrase organizes Genesis into eleven sections, each explaining what happened to the previous account. Thus Genesis 2:4–4:26 tells what happened to the earth that God had declared as very good in the preface to the book. Third, in Genesis 2:18–20, Adam does not name all the animals of creation. Rather, Adam named “helpers” that God formed for him after putting him in the garden (probably domesticable animals). When no helper was “suitable” (NASB) or “fit” (ESV) for Adam, God created Eve. Fourth, while Garvey wants to avoid an allegorical understanding of scripture, he is driven to it here as he presupposes a race of humans who long preceded Adam, and who co-existed with Adam.

Contrary to Garvey, God did not rescind the curse on the ground after the flood (GGE, 28). “Never again” does not mean “no longer.” Garvey downplays this major portion of the pre-Abraham material (one third) and does not show how it was good. To support his theory, he characterizes the flood as regional, allegorizing the entire account (GHE, 39–49). He alludes to archaeological evidence for support, but he ignores both textual and scientific material suggesting otherwise. If the flood were truly global as presented in scripture, the evidence likely would be geological, not archaeological, a matter of scientific *interpretation* of data beyond this review.

Much more could and should be said, but space disallows. I found these two books challenging, forcing me to think through a number of issues, both scientifically and theologically. I appreciated how Garvey critiqued aspects of evolution as well as “traditional” interpretations of scripture. As an Old Testament scholar, I appreciated his observation on how “the old critical consensus on the supposed literary disunity of the Old Testament has failed” (the so-called JEDP theory – GHE, 188). As an engineer schooled in the sciences, I appreciated his *scientific* challenges to the philosophy of naturalism, recognizing that the physical realm is not total reality. He noted several times that scientific assumptions needed to be rethought in the light of new evidences and cited cases such as consciousness, or the nature of Satan. I was especially intrigued by his observation about “enculturated ‘soft scientism,’” which he defined as saying “that theological statements must be subjected to scientific scrutiny in order to have any intellectual credibility” (GHE, 12). He correctly describes the early parts of Genesis as historical, as noted by even critical biblical scholars such as Gerhard von Rad. And, yet, when the text conflicted with current secular scientific interpretation, he reverted to allegorizing, exhibiting that same soft scientism he critiqued.

*Reviewed by Michael A. Harbin, Professor Emeritus of Biblical Studies, Taylor University, Upland, IN 46989.*

**FAITH AND EVOLUTION: A Grace Filled Naturalism** by Roger Haight. Maryknoll, NY: Orbis Books, 2019. 241 pages. Paperback; \$30.00. ISBN: 9781626983410.

Roger Haight is a Jesuit priest, theologian, and former president of the Catholic Theological Society of America. He is the author of numerous books and has taught at Jesuit graduate schools of theology in several locations around the world. In 2004, the Vatican’s Congregation for the Doctrine of the Faith (CDF) barred Haight from teaching at the Jesuit Weston School of Theology in response to concerns about his book *Jesus Symbol of God* (1999). In 2009, the CDF barred him from writing on theology and forbade him to teach anywhere, including at non-Catholic institutions. In 2015, Haight was somewhat reinstated and when *Faith and Evolution* was published, he was Scholar in Residence at Union Theological Seminary in New York City. He is regarded as a pioneering theologian who insists that theology must be done in dialogue with the postmodern world. His experiences with censorship have led to widespread debate over how to handle controversial ideas within the Roman Catholic church.

The main presupposition of this book is that Christian theology must be developed from the findings of contemporary science in general and from the process of evolution in particular. In chapter one, Haight briefly summarizes five principles about our world that can be drawn from science. These principles include the following: (1) our universe is unimaginably large; (2) everything exists as constantly dynamic motion and change; (3) everything in motion is governed by layers of law and systems conditioned by randomness; (4) life is marked by conflict, predatory violence, suffering, and death; and (5) science is constantly revealing new dimensions of the universe.

Haight seeks to explain how the disciplines of science and theology relate to each other in chapter two. He begins by summarizing the four positions proposed by Ian Barbour which include conflict, independence, intersection (dialogue), and integration. After presenting several differences between scientific knowledge and faith knowledge, he concludes by suggesting that the independence model is the one that best describes the practices of most scientists and theologians. Any integration between the two disciplines can occur only within the mind of a person who is able to see things from different points of view, and entertain them together.

The next two chapters deal with creation theology: chapter three focuses on what we can “know” about God, and chapter four describes how God acts in an evolutionary world. Several theological conceptions of God are summarized in chapter four. These include the following: God is pure act of being (Thomas Aquinas), God is ground of being (Paul Tillich), God is serendipitous creativity (Gordon Kaufman), God is incomprehensible mystery (Karl Rahner), and God is

transcendent presence (Thomas O'Meara). This last definition of God is the one that Haight latches on to, and he mainly refers to God as "creative Presence" throughout the rest of the book. While acknowledging that God is personal, he emphasizes that God is not a "big person in the sky," but a mysterious and loving presence within all material reality. He insists that all anthropomorphic language about God needs to be discarded as it not only misrepresents scientific knowledge but also offends religious sensibility. God is the "within" of all that exists which emphasizes God's immanence, but God is also "totally other than" created reality, which allows for God's transcendence. Haight's understanding of God is basically a form of panentheism, a term that he introduces in chapter three and then revisits in later chapters of the book.

Chapter four, entitled "Creation as Grace," attempts to answer the question of how God acts in an evolutionary world. Haight states that "one can preserve all the assertions of tradition without the mystifying notions of a supernatural order or interventions into the natural order by following the path laid out by creation theology" (p. xi). His answer to the question of how God acts in history is to be found in the classic notion of *creatio continua*, God's ongoing dynamic presence within all finite reality. God does not act as a secondary cause but works as the primary agent present to and sustaining the created world. This concept of God as creative Presence is then compared to the scriptural understanding of God as "Spirit," which Haight concedes is the most applicable way of talking about how God works in history. A third way that God acts in the world is then developed from a brief history of the theology of grace. These three sets of theological languages that include God's ongoing creation, the working of the Holy Spirit, and the operation of God's grace in people's lives are, according to Haight, different ways of referring to the same entity.

Chapter five examines the doctrine of original sin in light of evolution. Haight argues that this doctrine in its classic form contains serious problems and therefore needs to be discarded. The Genesis account of Adam and Eve is nothing more than an etiological myth which has no historical basis. Consequently, "when original sin becomes unsteady, the whole doctrine of salvation in terms of redemption begins to wobble" (p. 121). Human beings have not "fallen" and, even though they retain the influences of past stages of evolution, they cannot be born sinful. While Haight admits that humans are sinners, the sins that we commit are nothing more than social sins derived from our participation in sinful institutions that are a part of our evolutionary heritage. It is these sinful social structures that are primarily responsible for corrupting our moral sensibility, rather than some innate propensity to sin.

The person of Jesus Christ and the doctrine of Christology are the subjects of chapters six and seven

respectively. Haight introduces chapter six by contrasting the different ways of interpreting Jesus of Nazareth that are presented by Marcus Borg and N. T. Wright. He obviously sides with Borg's perspective as he suggests that one should think about Jesus as simply a "parable of God." Jesus was not an intervention of God in history, but a human representative of God who was "sustained from within by the Presence of the creator God in a way analogous to all creatures and especially human beings" (p. 202). While Haight admits that God was present within Jesus in a unique and more intense way, this same God can also be more powerfully present in others, making them in some measure true revelations of the divine Presence. Jesus provides salvation by "revealing God" and, although this particular revelation of God is meant for all humankind, it does not exclude the likelihood of similar kinds of revelation within other religious traditions.

The last chapter of the book, chapter eight, is a response to the question of what we can hope for in an evolutionary worldview. Haight discusses the following possibilities: faith in a creator-finisher God who injects purpose into the process of the universe, hope for a cosmic preservation of the value and integrity of being, hope for a restoration of meaning relative to innocent suffering, and hope for the preservation of the human person and personal resurrection. He describes resurrection as a passing out of materiality into the sphere of God that transcends the finite world, or in other words, eternal union with God. The resurrection of Jesus was not a historical event, but a spiritual conviction developed by his followers after his death. It was this "Easter experience" which became the basis for the written witness to the resurrection of Jesus that is recorded in the New Testament. In death, Jesus was "received into God's power of life; he did not cease to exist as a person, but lives within the sphere of God" (p. 179). Our hope for an analogous form of personal resurrection ultimately comes down to faith in a creator God who is the "lover and finisher of finite existence."

For whom then is this book written? As stated in the preface to the book, it is not written for scientists, as one will learn very little actual science from its pages. Haight writes that he is mainly addressing Christians who are affected by our present scientific culture and who do not know how to either process their Christian faith in this context or call it into question. However, most of those who fall into this category will likely have difficulty understanding the ideas that are presented in the book without some type of graduate-level training in theology. The book appears to be written primarily for like-minded theologians who are associated with the more liberal wing of the Roman Catholic church. (Many of the footnotes in the book cite publications written by fellow Catholic priests such as Teilhard de Chardin, John Haight, Hans Jung, Karl Rahner, Edward Schillebeeckx, and William Stoeger.)

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While Haight's main purpose for writing this book is admirable, it is doubtful that many outside of academia will take the time and put in the effort that is needed to read it and actually understand it. Christians with more conservative, biblically based faith commitments should probably bypass it altogether, as there is very little, if any, orthodox Christianity that is upheld within its pages.

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## TECHNOLOGY

**ATOMIC DOCTORS: Conscience and Complicity at the Dawn of the Nuclear Age** by James L. Nolan Jr. Cambridge, MA: The Belknap Press of Harvard University Press, 2020. 294 pages, plus index. Hardcover; \$29.95. ISBN: 9780674248632.

This book ends with a tragic photograph. The reader will see a young boy carrying a sleeping infant on his back. However, the infant is not asleep but instead is dead as his brother waits his turn to have his brother's body thrown into a giant pyre at Nagasaki in the days following the atomic bomb blast. This picture is symbolic of the tragedy of war and provides a provocative statement regarding the involvement of US physicians in the development of the atomic weapons program toward the end of World War II. The author, James L. Nolan Jr., PhD (Professor of Sociology, Williams College), provides an excellent historical vignette of this period through a written biography of his grandfather, James F. Nolan, MD.

Dr. Nolan, as well as Louis Hempelmann, MD and Stafford Warren, MD, were intricately involved with the Trinity testing in New Mexico as well as with the development of the atomic bomb as part of the Manhattan Project. Dr. Nolan met and collaborated with such famous people associated with the Manhattan Project, including J. Robert Oppenheimer, Edward Teller, and General Leslie Groves. The entire group of physicians oversaw determining radiation risks during atomic bomb development and testing. This placed them in a difficult situation which "linked the arts of healing and war in ways that had little precedent" (p. 166) especially regarding the Hippocratic Oath.<sup>1</sup>

Dr. Nolan was involved with setting up the hospital at Los Alamos as well as providing medical care for the Los Alamos staff and families. However, the job of these clinicians also had other aspects. Radiation exposure to workers was observed and recorded at Los Alamos leading to some of the initial descriptions of radiation poisoning. Additionally, the physicians were involved in determining radiation hazards associated with Los Alamos and in the setting of Trinity with most of their findings either being ignored or hidden from the public, sometimes with the complicity of these individuals.

It is fascinating to consider that Dr. Nolan was one of the military personnel chosen to accompany Little Boy (the bomb that exploded over Hiroshima) to the Pacific Front at Tinian Island on the famous and later tragic *USS Indianapolis*. I cannot imagine, in our present time, that a physician would be charged with transporting and reporting the safety of a technologically advanced weapons system.

The book contains many fascinating stories, including how military physicians as well as other personnel were told to assert there was no significant radiation after the bombing in Japan (despite obvious radiation injury being noted in thousands of individuals), how the military allowed reporters at the Trinity test site after the bomb test with no protection except for "protective" booties, how US military physicians were told to not treat Japanese civilians after the bombing in order to circumvent moral responsibility of the bombing (this was ignored), how the inhabitants of the Bikini Atoll and Enewetak Atoll were forced to abandon their ancestral homes so that further atomic bomb testing could occur (with subsequent deleterious effects in their sociologic and health outcomes), and how patients in the United States (many who were already terminally ill) were secretly injected with plutonium to determine the effects of radiation injury.

Besides being a biography and history of a physician and his colleagues, this book also goes in some philosophical directions, including considering what is the goal of technology. Oppenheimer himself stated that "It's amazing ... how the technology tools trap one" (p. 33). The "trap" leads to a myriad of issues. Dr. Nolan believed radiation should be considered under the paradigm of an "instrumentalist view of technology" in which new technology could be used for the advancement or decline of our species. In his case, he began experimenting with radiation to treat gynecologic cancer in his patients. The book then explores "technological determinism," both optimistic and pessimistic, which is still an issue permeating our culture today. The author states that humans appear to always choose technologic advances even before fully knowing downstream economic, political, or cultural effects. Such examples cited by the author include the internet, social media, and genetic engineering.

A Christian will find this book unsettling when one considers what one prioritizes in his (her) faith. For example, one of the physicists who worked at Los Alamos was a Quaker. The Trinity test was named after the Christian Trinity (based on a John Donne sonnet). These facts are sobering when the author provides reports of "downwinders" who suffered catastrophic disease after the Trinity test as well as going into detail about the thousands of Japanese who suffered radiation poisoning after the nuclear bombing. In addition, the bombing of Nagasaki was close to the Christian part of the city resulting in the killing of most of the Christians

living there. Indeed, the pursuit of science is a fascinating human endeavor, but the point of science is to objectively determine facts. Science does not necessarily provide subjectivity by itself which allows it to be influenced by meaning, moral values, and responsibility.<sup>2</sup> In the moral arena, people with religious beliefs, including Christians, are required to influence the idea of technologic determinism in a positive direction. I highly recommend this book not only to learn about an interesting part of world history but also to appreciate the tragedy of the human condition in the setting of war.

## Notes

<sup>1</sup>Michael North, translator, "Greek Medicine," History of Medicine Division, National Library of Medicine, National Institutes of Health, last updated February 7, 2012, [https://www.nlm.nih.gov/hmd/greek/greek\\_oath.html](https://www.nlm.nih.gov/hmd/greek/greek_oath.html).

<sup>2</sup>Mehdi Golshani, "Science Needs a Comprehensive World-view," *Theology and Science* 18, no. 3 (2020): 438–47.

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**THE ETHICAL ALGORITHM: The Science of Socially Aware Algorithm Design** by Michael Kearns and Aaron Roth. New York: Oxford University Press, 2019. 232 pages. Hardcover; \$24.95. ISBN: 9780190948207.

Can an algorithm be ethical? That question appears to be similar to asking if a hammer can be ethical. Isn't the ethics solely related to how the hammer is used? Using it to build a house seems ethical; using it to harm another person would be immoral.

That line of thinking would be appropriate if the algorithm were something as simple as a sorting routine. If we sort the list of names in a wedding guest book so that the thank-you cards can be sent more systematically, its use would be acceptable; sorting a list of email addresses by education level in order to target people with a scam would be immoral.

The algorithms under consideration in *The Ethical Algorithm* are of a different nature, and the ethical issues are more complex. These algorithms are of fairly recent origin. They arise as we try to make use of vast collections of data to make more-accurate decisions: for example, using income, credit history, current debt level, and education level to approve or disapprove a loan application. A second example would be the use of high school GPA, ACT or SAT scores, and extra-curricular activities to determine college admissions.

The algorithms under consideration use machine-learning techniques (a branch of artificial intelligence) to look at the success rates of past student admissions and instruct the machine-learning algorithm to determine a set of criteria that successfully distinguish (with minimal errors) between those past students who graduated and those who didn't. That set of criteria (called a "model") can then be used to predict the success of future applicants.

The ethical component is important because such machine-learning algorithms optimize with particular goals as targets. And there tend to be unintended consequences—such as higher rates of rejection of applicants of color who would actually have succeeded. The solution to this problem requires more than just adding social equity goals as part of what is to be optimized—although that is an important step.

The authors advocate the development of precise definitions of the social goals we seek, and then the development of algorithmic techniques that help produce those goals. One important example is the social goal of privacy. What follows leaves out many important ideas found in the book, but illustrates the key points. Kearns and Roth cite the release in the mid-1990s of a dataset containing medical records for all state employees of Massachusetts. The dataset was intended for the use of medical researchers. The governor assured the employees that identifying information had been removed—names, social security numbers, and addresses. Two weeks later, Latanya Sweeney, a PhD student at MIT, sent the governor his medical records from that dataset. It cost her \$20 to legally purchase the voter rolls for the city of Cambridge, MA. She then correlated that with other publicly available information to eliminate every other person from the medical dataset other than the governor himself.

Achieving data privacy is not as simple as was originally thought. To make progress, a good definition of privacy is needed. One useful definition is the notion of *differential privacy*: "nothing about an individual should be learnable from a dataset that cannot be learned from the same dataset but with the individual's data removed" (p. 36). This needs to also prevent identification by merging multiple datasets (for example, the medical records from several hospitals from which we might be able to identify an individual by looking for intersections on a few key attributes such as age, gender, and illness). One way to achieve this goal is to add randomness to the data. This can be done in a manner in which the probability of determining an individual changes very little by adding or removing that person's data to/from the dataset.

A very clever technique for adding this random noise can be found in a *randomized response*, an idea introduced in the 1960s to get accurate information in polls about sensitive topics (such as, "have you cheated on your taxes?"). The respondent is told to flip a coin. If it is a head, answer truthfully. If it is a tail, flip a second time and answer "yes" if it is a head and "no" if it is a tail. Suppose the true proportion of people who cheat on their taxes is  $p$ . Some pretty simple math shows that with a sufficiently large sample size (larger than needed for surveys that are less sensitive), the measured proportion,  $m$ , of "yes" responses will be close to  $m = \frac{1}{4} + \frac{1}{2}p$ . We can then approximate  $p$  as  $2m - \frac{1}{2}$ , and still give individuals reasonable deniability. If I answer "yes"

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and a hacker finds my record, there is still a 25% chance that my true answer is “no.” My privacy has been effectively protected. So we can achieve reasonable privacy at the cost of needing a larger dataset.

This short book discusses privacy, fairness, multiplayer games (such as using apps to direct your morning commute), pitfalls in scientific research, accountability, the singularity (a future time where machines might become “smarter” than humans), and more. Sufficient detail is given so that the reader can understand the ideas and the fundamental aspects of the algorithms without requiring a degree in mathematics or computer science.

One of the fundamental issues driving the need for ethical algorithms is the unintended consequences that result from well-intended choices. This is not a new phenomenon—Lot made a choice based on the data he had available: “Lot looked about him, and saw that the plain of the Jordan was well watered everywhere like the garden of the LORD, like the land of Egypt ...” Genesis 13:10 (NRSV). But by choosing that apparently desirable location, Lot brought harm to his family.

I have often pondered the command of Jesus in Matthew 10:16 where he instructs us to “be wise as serpents and innocent as doves.” Perhaps one way to apply this command is to be wise as we are devising algorithms to make sure that they do no harm. We should be willing to give up some efficiency in order to achieve more equitable results.

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**A WORLD WITHOUT WORK** by Daniel Susskind. New York: Metropolitan Books, 2020. 305 pages. Hardcover; \$28.00. ISBN: 9781250173522.

Will AI systems inevitably displace humans from employment? While computer and AI technology continue to advance at astronomical rates, the popular concern is often of an apocalyptic future where highly intelligent robots have taken over (e.g., *Terminator*, *Matrix*, etc.). In his book, *A World without Work*, Daniel Susskind predicts the current capabilities of technology will lead to a future in which powerful AI systems can do many of the jobs held by humans. Susskind therefore believes that the proliferation of AI systems will lead to a future “world without enough work for everyone to do” (p. 5). With his expertise in economics, Susskind explores how the continued advanced of technology will have profound effects on future employment, growing inequality, and the methods whereby humans find meaning and purpose.

The book is divided into three sections. In the first section, Susskind sets out the historical context of technological advancements and their effects on employment and economics. He highlights how the

early advancements of computer technology were often met with disappointment as creators found it exceedingly difficult to create a machine that could replicate human intelligence. However, this early disappointment led humans to underestimate the efficiency of AI systems in performing tasks that are easy to automate (or what Susskind refers to as “routines”).

In the second section, the discussion shifts to exploring how the increased power and affordability of machines enable them to perform more human roles. The fear of increasing unemployment due to technological advancement is a real fear. Susskind differentiates between two types of technological unemployment: frictional and structural. While frictional unemployment (humans not having the skills to perform a job) is certainly an issue, structural unemployment (there actually being too few jobs for everyone) is the more pressing problem. The threat of rising unemployment leads Susskind to predict that economic inequality will grow since only certain people will be able to acquire well-paying jobs.

In the third and final section, Susskind tries to provide a solution to the growing unemployment problem. He claims the attempted solution of technology education fails as a long-term response since not all people have the disposition to learn about technology, nor will there be enough jobs. A potential solution is to provide a UBI (universal basic income) for all people so that the economic inequality will not be so severe. However, Susskind rejects the UBI solution in favor of his proposed CBI (conditional basic income) which still provides income but with requirements that must be met. Susskind believes his proposed CBI solution has the added benefits of solving the inequality problem and providing meaning and purpose that a job once held.

Computer and AI technology are certainly advancing at a rapid rate. Susskind is not alone in his warnings regarding the potential dangers of technological advancements. However, Susskind helpfully points out that the danger does not come from machines gaining sentience and oppressing humans but, rather, the danger is one of machines gradually replacing us in our employment due to their overwhelming speed and efficiency. While there is relief that such an apocalyptic future is unlikely, the prediction of a future without enough work to go around ought to be a significant concern.

While Susskind’s prediction of a future with significantly reduced employment is well founded, his potential solution of implementing a CBI to provide the meaning and purpose lost from unemployment seems incomplete. With jobs no longer providing the sense of meaning and purpose, it is difficult for Susskind to find a solution to fulfilling these existential longings can be fulfilled. Unfortunately, he is unwilling to seriously consider a religious answer to these existential

questions, which could help provide a more satisfying response.

What applications can Christians consider from this book? There are at least two. First, if Susskind's prediction of machines performing many jobs traditionally done by humans is accurate and unavoidable, then Christians need to reconsider what work means and how our concept of work may need to evolve. Due to a lack of available positions and the difficulties of acquiring the skills needed, not everyone will be able to enter the field of technology work. While the existence of much traditional work may disappear due to automation, we still need to understand what it means to pursue a calling.

Second, Christians should be part of the philosophical and ethical discussions surrounding computer and AI progress. As the technological field continues to progress at a rapid rate, questions regarding the moral status of machines and their ethical implications for humanity will naturally rise to the forefront. The worldview that shapes these important discussions will have a profound impact on how future technology is designed and created.

Overall, Susskind's book is a welcome addition to the growing literature on AI technology concerns. He helpfully points out the potential future consequences of AI technology from an economic standpoint. I would recommend this book as a resource for thinking through the potential future ramifications of an increasingly automated world.

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**DIGITAL LIFE TOGETHER: The Challenge of Technology for Christian Schools** by David I. Smith, Kara Sevensma, Marjorie Terpstra, and Steven McMullen. Grand Rapids, MI: Eerdmans, 2020. 377 pages. Paperback; \$29.99. ISBN: 9780802877031.

All of us who are invested in Christian education, parents, administrators, building committees, boards, and especially teachers, have struggled with the role that digital devices should play in our schools and in the lives of our children. For this reason, *Digital Life Together* is a gift to the Christian education community in North America. This book is a careful, detailed, and comprehensive look at how a couple of Christian schools chose a 1-1 device-to-student strategy and lived with the technology in this intensive way. Regardless of where one falls on the spectrum, from full adoption to complete rejection of digital technology in schools, this book will broaden and deepen your discussions.

The authors chose a Protestant Christian school system with approximately 1,500 students (labeled "Modern Christian Schools" for purposes of anonymity) across several campuses that had a mature 1-1 device-to-

student approach to technology as the primary focus of their study. For comparison, they also looked at another Midwestern Protestant Christian school system from the same tradition and also surveyed graduates of Christian schools at a nearby Christian liberal arts college. Classroom observations, surveys, focus groups, case studies, and document analysis were used to "shed light on lived experience and changing beliefs and practices of members of a Christian school community embracing new technologies" (p. 26). An appendix on the research methods is included for those interested.

In order to get specific, the bulk of the book is divided into five sections: mission, teaching and learning, discernment, formation, and community. More detailed questions are raised to broaden and deepen the observations of how technology affected students at these schools. These questions are the anchors for the relatively short chapters that comprise the book.

As is befitting such an exploration, the authors are appropriately agnostic about both the wisdom and the efficacy of the intense use of technology in education. They highlight where there are successes from the school's perspective. For instance, they relay an example in which the mission-driven rationale for adopting the technology has made its way into the mind of a student (p. 46). Likewise, graduates from the focus schools indicate that the "technology program at Modern Christian Schools may be having some positive impact in terms of helping students manage their screen time" (pp. 166-67). Failures are also observed and noted. Most surveyed students acknowledged that the technology allowed them to find answers without really understanding them and led them to look for easy answers to problems. More than one third of them agreed that the technology encouraged them to skim over material rather than reading deeply (p. 128). The technology was also observed to promote unhealthy practices of task completion. Students were inclined to get work done quickly and then shop online, or use class time to shop in the anticipation that they would complete the work later (p. 132). Many other examples of positive and negative outcomes could be cited.

Perhaps one of the most intriguing lines of questions for administrators was how overtly Christian mission statements that were central in the adoption of technology could be co-opted by non-Christian aspirations as one moves out from the administration to the broader school community. "The way the mission was understood in the wider community was also shaped by broader social aspirations and implied stories about success" (p. 53). In reference to literature sent to the alumni community, the authors note that, "Appealing to existing community desires and values, including those focused on material advantage, was a way to build support for the program ... The focus group data suggest that this strategic communication choice left its mark" (p. 59). In the case of Modern Christian Schools,

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this uncomfortable mission slippage had to do with technology, but the same phenomena could occur with other program launches.

*Digital Life Together* is impressive in many ways. It is a careful, detailed account that remains highly readable and intriguing. Its structure, including the questions at the end of each chapter, makes it amenable to individual pondering and to group reading. Although there are detailed endnotes with citations, it would be helpful to have an appendix summarizing further readings on the general topic of technology, and of technology in education more specifically. As an educator, the book leaves me with many more questions—a real accomplishment in my estimation.

Reviewed by Paul Triemstra, Principal of Ottawa Christian School, Ottawa, ON K2J 3T1.



**HISTORY AND ESCHATOLOGY: Jesus and the Promise of Natural Theology** by N.T. Wright. Waco, TX: Baylor University Press, 2019. xxi + 343 pages, including notes, bibliography, and indices. Hardcover; \$34.95. ISBN: 9781481309622.

*History and Eschatology* is the published version of the Gifford Lectures delivered in 2018 at the University of Aberdeen by the prominent New Testament scholar and former Anglican bishop N. T. Wright. Lord Adam Gifford's will stipulated that the lectures bearing his name should treat theology "as a strictly natural science ... without reference to or reliance upon any supposed special exceptional or so-called miraculous revelation." This is one classic and influential way to describe the project of "natural theology." Wright, however, devotes eight chapters (corresponding to his public lectures), over almost 300 pages, first, to questioning the assumptions on which that project—so construed—rests, and, second, to laying the foundations of an alternative.

In chapters 1–2, Wright finds hidden in the background of Enlightenment-inspired natural theology—conceived as independent of the particulars of Jesus as attested in the Bible—as well as in the modern scholarly suspicion of the integrity and historicity of the biblical Gospels, a revived, arbitrarily deist, anti-historical Epicureanism:

European thought, from the mid-eighteenth century onwards, was increasingly shaped by the Epicurean mood ... So the split between heaven and earth, between God and the world, continued to dominate the discussion. (pp. 68–69)

In chapters 3–4, Wright puts forward his own field of expertise, history, as a kind of "missing link" in the study of the "natural" world. In particular, a rigorous, contextually attentive, historical investigation of Jesus—its methods and conclusions resisting the distortions of

chronological snobbery and materialistic metaphysics—deserves a place in the discussion:

Jesus himself was a figure of the real world. The Gospels are real documents from the real world. To refuse to treat them as 'natural' evidence ... looks like the sceptic bribing the judges before the trial. (p. 74)

In chapters 5–6, Wright summarizes some of the results of such an investigation, which naturally build on the conclusions reached in his sprawling published oeuvre on the historical Jesus:

Eschatology has come to life, say the first Christians, in the person of Jesus, and we know it because when we look at him we discern the dawning of the new day in a way which makes sense of the old, and of the questions it raised. (p. 184)

In particular, Jesus's being raised from death to new life gives not only new knowledge but a new way of knowing, what Wright calls an epistemology of love:

The resurrection ... assures us that all that we have known in the present creation ... will indeed be rescued from corruption and decay and transformed ... [L]ove revealed gives birth to an answering love. (p. 212)

In chapters 7–8, Wright seeks to synthesize the threads of his argument into a reconceived "natural" theology: one that takes Jesus' resurrection, in its full historical context and depth of meaning, as determinative (1) of how "nature"—the created world, teleological history, humanity fallen and redeemed—points, brokenly but truly, toward God's kingdom; and (2) of the mission of the Christian church in a world perhaps not bereft but still largely unaware of God's glory:

a celebration of the coming eschaton ... in faith, sacramental life, wise readings of scripture, and mission, will constitute the outworking of ... divine love, the highest mode of knowing ... in and for the world. (p. 277)

As always, Wright's vocabulary and style are refreshingly accessible, almost chatty (although he is not beyond the occasional arcane scholarly or cultural allusion), at times repetitious. His argument—that the modern divisions (not just distinctions) between "natural" and "supernatural," between "rational" empirical knowledge and "non-rational" special revelation, between "accidental truths of history" and "necessary truths of reason," are nothing more than a warmed-over, still-moldy Epicureanism from the third century BC, and that these are brought radically into question by Jesus's resurrection, thought through precisely in light of its ancient Jewish background—is less new than trenchantly and winsomely laid out. And he does not so much interact with the modern traditions of natural theology as suggest that there are more important and interesting fish for theology, running on an epistemology of love, to fry. Indeed, Wright's implication is that natural theology in Lord Gifford's sense suffers from a case of misguided methods and unambitious goals. But it is really an implication, for *History and*

*Eschatology* is more like a manifesto, proposing a monumental agenda, than a parsimonious demonstration of the inadequacy of “old-style” natural theology’s ways and means. (Wright’s disposal of three classic strategies of apologetics in a “natural theology” mode—the cosmological, teleological, and moral arguments—takes barely three pages in chapter 7.)

As someone who is theologically sympathetic to Wright’s overall project, both in its design and in many of its details (others are decidedly not so sympathetic), I consider there to be room for debate over the role of such strategies in the contemporary exposition and defense of Christian faith. That debate is not to be found in *History and Eschatology*. The possibility of dialogue with more “traditional” natural theology seems far away by the time we get to the end of a book subtitled *Jesus and the Promise of Natural Theology*. And Wright, who, in most respects, is the paradigm of a careful, objective reader and historian, is still prone to annoyingly and unhelpfully broad generalizations on matters unconnected to his expertise (e.g., Adam Smith’s economic thought “has become highly influential ... ending up with the greed-is-good philosophy of Ronald Reagan and Margaret Thatcher” [p. 19]; Karl Barth could “launch a much fiercer protest” than Rudolf Bultmann against Nazism “partly because he was a Calvinist not a Lutheran” [p. 62]). These are real criticisms, but, I must admit, relatively minor ones in comparison with the impressive intellectual and spiritual vision on offer in *History and Eschatology*. More than many of its kind, this is a readable, preachable, shareable book.

*Reviewed by Maurice Lee, North American Lutheran Seminary, Ambridge, PA 15003.*

**SCIENCE AND RELIGION: A New Introduction**, 3rd edition by Alister E. McGrath. Hoboken, NJ: John Wiley and Sons, 2020. 272 pages. Paperback; \$28.99. ISBN: 9781119599876.

Alister McGrath is a major international scholar who is prolific in his output. He has produced many popular books and academic tomes, and as a theological educator his output also includes many textbooks for students. *Science and Religion: A New Introduction* is now into its third edition and is an excellent introduction to the whole field of science and religion. The restructuring and inclusion of new material is designed to be helpful to the student, and reflects comments on the previous editions. The book introduces most of the areas of interaction between these bodies of thought, and I myself have used earlier editions in my own teaching, giving students a chapter of McGrath to start with for an essay, followed by more detailed material from elsewhere.

McGrath notes that science and religion are wide categories and serious study entails narrowing them down. He describes Ian Barbour’s four models for interaction followed by what he calls four ways of imagining the relationship between them. The conflict model is rightly

dismissed as a late nineteenth-century myth, and areas where conflict has been perceived, notably with Galileo and Darwin, are given the more nuanced treatment they deserve, thus dispelling the myths surrounding them. McGrath also gives a broader historical overview, refuting the further myth that the scientific revolution owed nothing to the medieval period. He describes the development of the Newtonian mechanistic model of the universe and brings us to the twentieth century with the development of the Big Bang theory. Regarding this last, it would have been good to note the pioneering work of Roman Catholic priest Georges Lemaître, often dubbed the “Father of the Big Bang,” who, in contrast to Alexander Friedman, regarded solutions of Einstein’s equations as physically realistic and not just mathematical curiosities.

McGrath moves on to a helpful chapter on religion and the philosophy of science. Some form of realism seems predominant and, indeed, the most rational position to take. It is interesting to note the adoption of “critical realism,” including not only by science-religion scholars such as John Polkinghorne and others, but also such as the biblical scholar N.T. Wright and James Dunn. McGrath moves on to the role of explanation in science, noting how in science there are different methods for different sciences, and thus different levels of explanation across the different subdisciplines. Theology too has its own methods appropriate to its own object but there are differing views on the role of explanation. He discusses an important case study, that of “non-reductive physicalism” associated with Nancey Murphy and others. He also gives criteria for drawing an “inference to the best explanation.” Various perspectives on the philosophy of science—logical positivism and the criteria of verification, falsificationism, and Kuhn’s paradigm shifts—are discussed. Worthy of mention here would have been Imre Lakatos whose “methodology of scientific research programmes” has been applied to theology by Philip Hefner and Nancey Murphy.

Complementing the above there follows a useful chapter on science and the philosophy of religion. McGrath describes arguments for the existence of God, beginning with Aquinas’s five ways. A section on the Kalām cosmological argument notes how this has been given a new lease on life by the Big Bang theory’s postulation of a temporal origin to the universe, although it would have been good to note that the existence of the universe would demand an explanation even if it were to lack a temporal origin. He gives a careful analysis of Paley’s natural theology, noting neglected aspects of Paley’s work such as his responses to arguments of David Hume. He examines ways in which God may act in the world given the laws of nature uncovered by science, including through miracles, where he notes Hume’s critique. However, as McGrath rightly says, Hume’s critique needs to be qualified, since, on the one hand, he defines miracles as violations of laws of nature and yet, on the other, has a problem with

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inductive generalizations from past experience – which is just what laws of nature are. McGrath rightly sees evolutionary arguments debunking religion as committing the genetic fallacy and self-defeating if human rationality is flawed, since that could equally well affect judgments in areas other than religion, notably science. There is a good section on natural theology and the role of explanation.

In the next chapter, McGrath turns to models and analogies: first, as found within the natural sciences and then, within religion. After considering what the terms mean more generally, he gives specific examples for the sciences, including the kinetic theory of gases, wave-particle duality, Galileo's analogical reasoning which led him to postulate mountains on the moon, and Darwin's metaphor of "natural selection." In the theological sphere, he considers Aquinas's notion of *analogia entis* whereby the creation bears a likeness to its creator, and Ian Ramsey's model of the "divine economy" utilizing the Greek concept of *oikonomia*. He looks at Arthur Peacocke's theological application of models as linked to "critical realism," and Sally McFague's metaphors in theology – though he could perhaps have allowed more than one sentence on Janet Soskice. He then examines specific theological examples: creation and theories of the atonement. He has a helpful section on the notion of "mystery" in science and religion before returning to Ian Barbour on models.

McGrath's final chapter considers a number of contemporary debates. Noting Hume's distinction between "ought" and "is" he critiques the idea that science, say, evolutionary biology or neuroscience, can determine ethics and moral values. That leads to a more general critique of the imperialist stance that science can answer all interesting questions or that the only reality is that disclosed by science. An interesting example is mathematics, which discovers truths that do not belong to the natural sciences. It is also utterly astonishing that mathematics is effective in describing nature and very hard to explain on an atheistic view.

An important area considered is theodicy, which is arguably made more difficult by the long process of evolution, preceding the existence of humans by hundreds of millions of years. McGrath provides an overview of the helpful contributions of Christopher Southgate and his former student Bethany Sollereder. For these scholars, there is "no other way" for God to create such a rich diversity of creatures, with whom God suffers, and for whom God will bring eschatological fulfilment. On transhumanism, McGrath describes the approaches of Philip Hefner and Ted Peters who, while recognizing the creativity of technological enhancement, are also aware that, given fallen human nature, this can also be abused.

McGrath returns to the anthropic principle and fine-tuning. He says that fine-tuning is strongly consistent with a theistic perspective, but the debate about a

multiverse as a possible explanation continues. He also considers the legitimacy of teleological language and directionality in biology. Simon Conway Morris's notion of convergent evolution may be the "best explanation" of what is observed and is resonant with a religious perspective but, like cosmological fine-tuning, does not prove that God exists.

McGrath concludes with two sections on the psychology of religion, considering whether this field can "explain away" religion. Religion may be "natural," but it is debatable as to whether that has any implication at all about the existence of God. Moreover, it is a long way from primitive apprehension of some vague supernatural agent to the systematic theology of, say, Thomas Aquinas or Karl Barth. To my mind, this is not unlike the difference – to give a scientific analogy – between the discovery of fire by early humans and the modern scientific understanding of combustion.

This is an excellent introduction to the field and very well suited to its pedagogic purpose. There are a few typographical errors (e.g., "magisterial" for "magisteria"). I also noticed that British cosmologist Paul Davies is mistakenly described as American. But these and my earlier minor points should not detract from a volume that provides a vital resource to educators and their students.

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**ANIMAL SUFFERING AND THE DARWINIAN PROBLEM OF EVIL** by John R. Schneider. Cambridge, UK: Cambridge University Press, 2020. xii + 287 pages. Hardcover; \$99.99. ISBN: 9781108487603. Kindle; \$60.49. ISBN: 9781108767439.

In *Animal Suffering and the Darwinian Problem of Evil*, John Schneider seeks to tackle four interconnected difficulties of reconciling evolution with a Christian understanding of God's creation: (1) deep evolutionary time and the startling reality that there have been hundreds of millions of years of violence; (2) the "plurality of worlds," the masses of now-extinct life that once inhabited our planet; (3) the discovery of "anti-cosmic micro-monsters," the realization that microbial life shares the violent and competitive world that macro scale life experiences; and (4) "evil inscribed," the discovery that natural selection is the very driving mechanism of creation, if evolution is to be believed.

Schneider does not set out to create a theodicy, in the technical jargon of the field, but follows Michael Murray's lead in his 2008 *Nature Red in Tooth and Claw* and seeks a "*causa Dei*": a possible reason for God to allow animal suffering that is more plausible than not. Schneider does not claim to know the actual reasons for natural evil, but only suggests probable reasons. The central suggestion is that, in line with Marilyn McCord Adams's work, evil must be defeated for God to be

justified. Evil is defeated when it is “a constitutive part of a valuable composite whole that not only outweighs the evil but could not be as valuable as it is without the evil” (p. 7).

Schneider spends the first six chapters setting out his space in the existing literature. He gives convincing reasons for avoiding animal theodicies that depend on a human or Satanic fall, which he finds “implausible in the extreme” (p. 100) for philosophical, scientific, and biblical reasons. He also rejects the “only way” approach developed by Christopher Southgate. Rather, he sees chaos (symbolized by the figure of the serpent in Genesis 2) as “incorporated into the original, ‘very good’ cosmic design” (p. 107). To defend this thesis, he develops an aesthetic approach to the problem of evil. God should be viewed as an artist, in which natural good and evil “create an overall picture of evolution as something like a larger story” (p. 155). Both the beauty and ugliness of nature call us to recognize a tragic sublime that helps us “see” a sense of divinity in the world. Schneider draws on biblical texts—in particular, the book of Job—as a source of theodical insight. Surprisingly, Schneider makes no use of Southgate’s 2018 *Theology in a Suffering World* or Joel C. Daniels’s 2016 *Theology, Tragedy, and Suffering in Nature* which might have been helpful dialogue partners for this approach because they offer aesthetic explorations of seeing God in the tragic side of creation.

Schneider presents two last interesting thoughts. First, that Jesus’s death takes the place of the sacrificial animals in Hebrew tradition, not as a symbolic gesture, but so that in the purification rites of Yom Kippur, the one animal is not slaughtered, and the scapegoat does not have to be exiled and die in the wild. “On the cross, Jesus assumes both these animal roles—for the sake of the animals *themselves*” (p. 240, italics original). In so doing, Jesus enters “symbolically into the place of non-human and human alike, and thereby ‘declaring’ that responsibility for the suffering of animals inscribed into the design of nature finally falls on God” (p. 240). While not dissimilar to Southgate’s suggestion that, in the Cross, God takes responsibility for all suffering, human and nonhuman, this more literal exchange brings a particularity to the instances of animal suffering that is directly linked to Jesus’s death.

Second, Schneider takes seriously the idea of animal resurrection, but holds that the usual solutions for that do not do enough to defeat the evil that animals experience. Schneider suggests instead that animals should be elevated “to a high heavenly standing analogous to the venerated position enjoyed by human martyrs” (p. 264). They are honored for the part their suffering played on Earth and enjoy the admiration of others for their sacrifice.

As with any good book, there are things to quibble with. Schneider follows the work of Carol Newsom and Samuel Balentine closely in his reading of the book of

Job. Newsom’s assesses Job’s gain in the all-important divine speeches as “tragic insight,” a view that points to the limits of dialogue and the end of anything left to be said (Carol Newsom, *The Book of Job* [Oxford, UK: Oxford University Press, 2009], 253). Yet Schneider says, “I must depart from her conclusion on what Job ‘saw,’” instead forwarding a view that offers a “*transfiguration* of tragedy into faith” (p. 191, italics original). Schneider maintains that if one is to create a *causa Dei*, or a defense, one must meet a “seeing condition”: that is, must “provide a perspective in which one can at least begin to ‘see’ that God is engaged in the defeat of evil now” (p. 195). Schneider’s insights on the book of Job as meeting that condition depend on his departure from Newsom’s interpretation. Yet he defends the strength of his larger theodical argument because it is based on an interpretation of Job that is “grounded ... in the scholarship of specialists on the historical and literary character of the book” (p. 199). Schneider’s appeal to authority here is questionable given that he differs from those authorities on the key hermeneutical issue of the book.

I also was glad for Schneider’s extended treatment on my own work, *God, Evolution and Animal Suffering*, which overall, was fair (he is right, for example, on p. 257, that my proposals do not meet the seeing condition). However, his assessment of the moral-justificatory concerns on pp. 259–60 caused me to raise an eyebrow of surprise, as my example of how the death of dinosaurs could be seen as a meaningful part of the beauty of Bach’s music was taken in a direction I never anticipated. Schneider took me to mean that “if God’s aim all along was to bring forth mammalian and distinctly human life, then the dinosaurs had to be exterminated by some means” (p. 260). So, the death of the dinosaurs, and indeed of all prehuman life, was an engineered steppingstone to humans. This could not be farther from what I intended, as I hoped my engagement with Ruth Page’s concept of “teleology-now” would show. Instead, I meant that God could link two seemingly unrelated historical events in a way that each created meaning for the other. If dinosaurs had not died in an asteroid strike, perhaps God might have created creatures in God’s image among the descendants of the velociraptors. By no means do I think that God engineered animal death for particular historical ends, but rather that God creates ways of redeeming all suffering by an act of creation of meaning.

Regarding Schneider’s thought that animals should be thought of as martyrs, the odd thing about this proposal is that martyrs are honored, not for dying, but for dying willingly for the sake of Christ. Schneider writes, “martyrs do not have to pass tests for entry into Heaven” (p. 266), but this overlooks that the very imagery he is drawing on in the book of Revelation assumes that they have already passed tests in what they suffered by refusing to recant Christ (Rev. 2:10, 6:9). This puts martyrs in quite a different place from the suffering experienced by animals, which is always unwilling even if equally

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innocent. Martyrs are honored for their choice to suffer when the option of being spared was presented to them—just like Jesus did. Animals are given no such choice, so it is difficult to see how being honored for an unwilling death undoes the injustice of putting them through suffering in the first place.

Yet, despite the ongoing quibbles, this is a concise and insightful book. It sets out a valid set of criteria and goes a long way toward achieving arguments that meet those criteria. I think it will become a staple of animal theodicy courses and is appropriate for upper-level undergraduate reading. It engages well with the other books in the field, and while it takes a more analytical and philosophical approach to this question compared to Christopher Southgate's *The Groaning of Creation* or my own *God, Evolution and Animal Suffering*, it does so with rich engagement with biblical texts and theological tradition.

A comment on the physical copy of the book I received: the printing was done with extremely rough pixilation, which has resulted in rather crude lettering. The book uses a serif font, but these were not printed in their totality and many letters have small gaps in them. While reading, this makes the letters look blurry and out of focus, or as if the printer ran out of ink. It is disappointing that the printing quality is so poor in a book that costs so much. Readers who will be bothered by this should opt for the digital edition where the letters are fully present.

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**ANALOG CHURCH: Why We Need Real People, Places and Things in the Digital Age** by Jay Y. Kim. Downers Grove, IL: InterVarsity Press, 2020. 192 pages. Paperback; \$18.00. ISBN: 9780830841585.

There is a thought-provoking irony about this book. *Analog Church: Why We Need Real People, Places and Things in the Digital Age* by Jay Y. Kim was written prior to the 2020 pandemic, and published at its first peak around March of that year. The book serves as a creative warning about the church "over-embracing" modern technology and all that the digital age offers, at the cost of stifling its original purpose, a purpose steeped in analog principles of empathetic relationship. Fair enough! But along come the COVID-19 restrictions, and the church (and every other part of our institutionalized life) jumps full steam ahead as digital technology becomes essential. My own perspective is from Canadian Presbyterianism. It, with some exception, has been slow to embrace many technological advances when it comes to "doing church." Nonetheless, it and many other churches have been dragged into the twenty-first century with near abandon. The number of churches doing meetings and Sunday worship via YouTube, Zoom, Facebook, and other platforms has skyrocketed.

The prophetic voice inherent in *Analog Church* is speaking to the church community at a time when it is relying on digital technology to continue functioning. The introductory section of the book focuses on how technology, in and of itself, is not adequate to reach those who are searching for a transcendent meaning and purpose in life, and may, in fact, steer people away from such a relationship. In an introductory section entitled "When Values Turn Vicious," the author notes that "the digital age's technological advancements boast three major contributions to the improvement of human experience ..." (p. 15). These are speed, choices, and individualism. He notes that when such values unduly influence the church and aren't held accountable, "they turn vicious." Speed has made us impatient, choices have made us shallow, individualism has made us isolated.

It is on this premise that the author uses the remainder of the book to detail his warnings and his reasons for hope. The chapter titles are provided here, as they are descriptive of the content. Part 1 has two chapters which examine worship: "Cameras, Copycats and Caricatures: Worship in the Digital Age"; and "To Engage and to Witness: Analog Worship." Part 2 considers community: "Rebuilding Babel: Community in the Digital Age"; and "A Tax Collector and a Zealot Walk into A Crossfit: Analog Community." Part 3 looks at scripture: "Jackpot: Scripture in the Digital Age"; "HowToReadABook: Analog Scripture"; and "The Meal at the Center of History: Communion."

An example of the author's approach can be taken from the section on worship. He has the reader consider "how the digital age and technology's influence have subverted much of what worship life of the gathered people of God is meant to be" (p. 35), in part in the church's effort to reach new generations. Here he invokes the wisdom of Canadian philosopher and media guru Marshall McLuhan. He notes how McLuhan's 1960's prophetic voice is making a return due to the precise nature of his pronouncements, and how they match current circumstances. He summarizes McLuhan's "Four Laws of Media" (media in a very broad sense), as applicable to our use of technology today in the church, and, in this case, worship. The laws are summarized as follows: what does it enhance, what does it push aside, what does it retrieve that was previously pushed aside, and, what does it turn into when pushed to an extreme? As Kim moves into the value of analog worship, he notes that "digital informs," but "analog transforms," and similarly, "digital entertains, analog engages."

The author works into his narrative a number of stories based on his own life experiences, and pastors and speakers will find these worthy of using in their own teaching. While there are biblical references scattered throughout, this reviewer particularly appreciates the detailed way some scriptural passages are handled.

For example, in the section regarding analog community, the author takes an extended look at the list of the first disciples in Matthew 10:2-4. He pays particular attention to the unique descriptors for two of them: Matthew, a tax collector; and Simon, a zealot. These two would have been bitter enemies, yet we read nothing of the animosity that would have existed between them. There was something, a force, contained in their leader that was much stronger than their own histories and opinions of one another. Kim later notes that there is the need for this kind of communal relationship, as

The digital age has disconnected and detached us from one another in ways completely unique to our current moment in history. True analog community is what the world is hungry for, whether they know it or not. (p.113)

The author is certainly no luddite. He applauds the use of digital technology when properly focused. He himself lives in the heart of Silicon Valley, and, in many ways, he has been at the cutting edge of digital technology and its use in the church. He is the lead pastor of teaching at WestGate Church in the same area, and until recently was teacher-in-residence at Vintage Faith Church in Santa Cruz. He cohosts *The Regeneration Podcast*. He has a very useful website (jaykimthinks.com), and he makes himself readily available via Twitter, Instagram, and Facebook. All this is to say that Jay Kim has considerable credibility concerning the subject matter of this book. In fact, on the March 22, 2020, version of Regeneration Podcast, there is a specific commentary about the book, with some pandemic perspective as well. One of the book's phrases which is featured in the podcast discussion is "the temptation to pursue relevance at any cost." The podcast is a good resource for those considering getting the book.

ASA/CSCA members might well be wondering if the book is primarily for pastors and church leaders (which group, of course, includes a number of our members). As for those involved with the scientific endeavor, there are also some worthy considerations. This reviewer has long considered scientific activity as a form of worship, and the work of the ASA as an important ministry in itself. Many of the warnings that Jay Kim provides in his book can be easily transferred to those who share the importance of a vital science and faith relationship. In fact, it is about relationship. Digital "spectacle" may be a useful and inspiring aspect of short-term events and conferences, but the purpose of both church and our individual witness is quite different. It requires an analog approach, enhanced by a subtle and reflective use of technology which builds upon the purpose of churches and congregations, but does not replace it. In conclusion, I would recommend this book to ASA members interested in how digital technology shapes the church.

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**DIVINE ACTION AND THE HUMAN MIND** by Sarah Lane Ritchie. Cambridge, UK: Cambridge University Press, 2019. 373 pages. Hardcover; \$120.00. ISBN: 9781108476515.

Imagine a medieval castle within which rests not one but two keeps. One keep is tall and strong, seemingly impenetrable. The other, short, rather shabby, and in some disrepair. For years, the inhabitants of the shabby keep have tried to communicate with the strong tower. They have built bridges, thrown ropes, shot arrows with messages, all to no avail. One day, it is discovered that both keeps rest on the same foundation, and that foundation has passageways from one tower to the other. The possibility of communication is free and open, always has been, but the blueprints were lost, so no one knew. In the discussion of science and theology, much has been made of the power and regularity of the laws of nature and the belief that the laws stand free of theological influence. The laws are the tall keep, protecting the august authority of the scientific method. Theologians often lose heart before the keep's thick walls, retreating to their rather shabby tower. Sarah Lane Ritchie argues that we are just discovering the shared foundation between the two keeps and that theology need not quake at the foot of the tall tower. There have been, all along, the resources in theology to show how the two keeps are related.

Ritchie's work focuses on the recent past, and argues for a "theological turn" in divine action theorizing. She notes the influence of the Divine Action Project (held over the course of 15 years, ending in 2003), most of whose publications found themselves searching for a "causal joint" where the power of God to act could touch the created world without interfering with the laws of nature. Theologians have been wary to question the power and correctness of the metaphysical foundations of those laws. The result manifests itself in three key beliefs: (1) noninterventionism (God doesn't or can't intervene in the working of the laws of nature); (2) incompatibilism (God and nature cannot both cause the same events); and (3) prescriptive accounts of the laws of nature. These key beliefs summarize the "standard model." Ritchie takes on the standard model through considering the work of Philip Clayton as well as the "hard problem" (of consciousness) theorists who reject the notion that mind can be reduced to nature (or at least to the material or the physical). Ultimately, she ferrets out the areas in which those in the science and religion field appeal to a nonphysical account of the human mind, where God can work without interfering with the laws of nature. Ritchie's approach is both historical and philosophical; her exegetical work is solid, showing where various theorists stand in the midst of the standard model, and how their views sometimes make unwarranted assumptions or have unwanted implications.

Her thesis is that the "theological turn" in recent accounts of God/world interaction can overcome the

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standard model, giving theology something closer to equal footing with science. There is a shared foundation. Ritchie defends the possibility of interactionism, compatibilism, and a more descriptive account of natural laws. She even proposes that the mind could be entirely natural, perhaps even purely physical, and yet fully rooted in divinity. God can interact with the natural world, not through some nonnatural causal joint but, first, because it is infused with the divine via God's immanence; second, divine and natural causation of the same events are compatible because the two sorts of events are not truly separable; and third, the laws of nature should be understood as describing what happens rather than telling us what must happen. She approaches the theological turn through contemporary Thomistic "double agent" theory, an Orthodox "incarnationalism," (Ritchie calls it a "naturalistic panentheism,") and a new emphasis on the work of the Holy Spirit in charismatic theology. In each case, but especially the latter two, Ritchie finds evidence of a broadening of the notion of what counts as natural that allows the human mind to be entirely part of the natural world, falling under natural law, and noting that the natural law is not separable (in a variety of ways, depending on which divine action theorists are considering) from divine activity.

As such, Ritchie traces out the theological turn in recent work on divine action, placing her essay in the Current Issues in Theology series, part of whose goal is to present state-of-the-art work with original insights for upper-level undergraduates and graduate students, as well as for Christian teachers and church professionals. The book certainly fulfills those goals. Ritchie deals with a mountain of research from the last 50 years, and does so with pluck, generosity of mind, and honesty. Her presentation of complex and difficult theories is clear and understandable without talking down to the audience or skimming over details.

Few books are without some problems, however. I will note what seem to me two weaknesses in an otherwise fine book. The first is Ritchie's seeming confusion of historical developments and philosophical arguments. I wondered why the mere fact that certain theories have come from the theological turn is a reason to think those theories true. While Ritchie does present a good deal of critical assessment of both the standard model and the work coming out of the theological turn (and those assessments are both balanced and fair), it was not clear to me why a person should accept the theological turn as moving us toward truth. That a proposal comes to the table in history is not a reason to believe it. That one should reject the standard model, yes. But that the alternative is right? Not so much. To be fair, Ritchie doesn't claim the latter to be true (but something closer akin to "possible"). However, there is the subtle (and sometimes not so subtle) claim that there has been this historical shift and, therefore, the new models are superior. Perhaps, however, this sort of confusion

between historical and philosophical viewpoints is difficult to avoid in a book in this series. It is a tall order to give account of new, and fairly recent, major shifts in thought, no matter how original the new paradigms may be.

The second question (and I admit to having no good solution myself) is the account of what is "natural." Ritchie is aware of the slippery nature of the term, along with its sister "supernatural." Perhaps the terms have outlived their usefulness. If there is a shared foundation between theology and science, why the separation of natural and supernatural? I was reminded of Irenaeus's work *On the Incarnation* as well as the following quotation from G. K. Chesterton:

Because children have abounding vitality, because they are in spirit fierce and free, therefore they want things repeated and unchanged. They always say, "Do it again"; and the grown-up person does it again until he is nearly dead. For grown-up people are not strong enough to exult in monotony. But perhaps God is strong enough to exult in monotony. It is possible that God says every morning, "Do it again" to the sun; and every evening, "Do it again" to the moon. It may not be automatic necessity that makes all daisies alike; it may be that God makes every daisy separately, but has never got tired of making them. It may be that He has the eternal appetite of infancy; for we have sinned and grown old, and our Father is younger than we.

Concerning Irenaeus's take on the incarnation along with Chesterton's reflection: both point to the theological turn in the science and religion field. Perhaps natural laws don't exist at all in the ways scientists and philosophers of science have generally thought of them. It is just that we have grown older than God's love of monotony. When, to spice things up, I throw a curve at my youngest child when re-reading, for the hundredth time, his favorite book, and replace a monotonous word with an alternative, laughter breaks out. The joy is present on his six-year old face. So, perhaps, with God. Perhaps the divinity reads new words into the story now and again, just to keep a smile on our faces. Perhaps the laws are not fixed "in nature" but in God's intention, and the divine is surely free to throw us a curve. The theological turn, it seems, begins to redeem the role of theology in science and religion discussions by recognizing that science is not itself divine, any more than is theology. Both are human constructs out of our experience of the natural and the mystical, and they should have something closer to an equal footing in the human intellectual project. Perhaps, indeed, the keep of theology is not merely on the same footing as the keep of science but is just as tall and strong. It may, however, take time to convince the inhabitants of both keeps to move toward a more inclusive view.

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