

? CULTURE AND THE BIG QUESTIONS

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CREATIONISM USA: Bridging the Impasse on Teaching Evolution by Adam Laats. New York: Oxford University Press, 2021. 218 pages. Hardcover; \$32.95. ISBN: 9780197516607.

Historian Adam Laats (a self-described noncreationist, nonscientist) has written a thorough and well-documented account of American creationism, past and present. His frequent use of primary literature and direct quotes assures the reader that s/he is being presented with accurate information.

Laats shows that most Americans don't know much about evolutionary theory and that they have taken the path of least resistance by carelessly embracing positions simply because of the persuasiveness of winsome idea champions. Laats argues that they should evaluate supporting evidence for those positions. He opposes the "missionary attitudes" on both sides of the controversy, pointing out that some creationists link views on origins with salvation, and some atheistic evolutionists wish to convince creationists to abandon religion for science.

Laats posits that the evolution/creation conflict is mostly between young earth creationists (YEC), whom he calls "radical creationists," and everyone else. He says that radical creationists incorrectly conflate the holding of "liberal" social positions on such things as sexuality, abortion, and politics with learning about evolution. In response, radical creationists have built systems and institutions to promulgate their views in competition with mainstream science. Sadly, his use of the harsh moniker "radical creationists" will not lead many YEC adherents to read his book.

Laats theorizes that creationists are such for many reasons, including seeking explanations of first cause, purpose, and the driving forces acting in the created order. He points out that they are also concerned about consciousness and morality. While he gives examples of the uncivil and fratricidal rhetoric between champions of various creationist positions, he also takes the time to describe the hermeneutical approach taken by a majority of YECers (famously promoted by Ken Ham and his ministry Answers in Genesis), that is, to understand the intended meaning of the biblical text under consideration. He then shows that while the old earth creationist perspective (championed by Hugh Ross and the ministry Reasons to Believe) is quite varied in the particulars, it agrees with the YEC view that speciation events were acts of divine intervention, not evolution. He continues

to show that mainstream evolution gains the strongest support from creationists self-identified as evolutionary creationists (i.e., theistic evolutionists), who are represented by the "non-radical" umbrella organization BioLogos. He shows that intelligent design proponents hold diverse views on the age of the creation and on evolution, but that they share the belief that life is too complex to have arisen on its own. With keen insight he writes: "Radicals, non-radicals, old earthers, intelligent designers, evolutionary creationists all compete to have their creationist vision embraced by religious people who might or might not look askance at evolutionary theory" (p. 17).

While he thoroughly describes the main creationist viewpoints (young earth creation, old earth creation, evolutionary creation, intelligent design), and he quotes evolutionary creationist Kenneth Miller statement that "absolute materialism . . . cannot fully explain the nature of reality" early on (p. 21), for the rest of the book, Laats largely ignores how naturalism, materialism, and teleology affect theists' stances toward evolutionary theory.

Naturalism (ontological) is the view that the universe completely lacks supernatural or metaphysical elements.¹ While many evolutionary creationists are methodological naturalists (science should not address metaphysics), they are not ontological naturalists.

Materialism, while similar to naturalism, posits that the universe consists only of matter and energy.² Relating these propositions to science, David Griffin writes:

Science, it is widely agreed in scientific, philosophical, and liberal religious circles, necessarily presupposes naturalism . . . Most philosophers, theologians, and scientists, however, believe that scientific naturalism is incompatible with any religious view of reality.³

Teleology (biological progress) is consistent with the theological view that God created the universe and life with purpose.⁴ Evolutionary creationists hold a variety of views on teleological evolution, and those who accept it in principle disagree on possible mechanisms of action. Many creationists conflate evolution, materialism, and ateleology. This strengthens their resolve to reject evolutionary theory of any kind.

To "bridge the impasse," Laats prescribes how evolution should be taught in public secondary schools: children should learn about evolution and religious ideas should be kept out of the classroom. Trust in educators should be fostered because Americans doubt mainstream evolutionary theory due to "our fundamental, divisive, enduring lack of trust" (p. 175). But this approach to gain trust of students through the presentation of convincing evidence and arguments has already been shown to be largely ineffective. Teachers

who fail to consider religious presuppositions are likely to build intransigence among their religious students. On the other hand, culturally competent teaching methods have been shown to successfully engage both evolutionary theory and the learner's presuppositions and religious beliefs. A growing body of empirical studies shows that culturally competent evolution educators can gain the trust of their students, who are then less resistant to new or previously rejected propositions about evolution.⁵

In summary, this fine book suffers from a failure to recognize naturalism/materialism as the core conflict between creationists and materialistic evolutionists,⁶ and it doesn't promote the building of trust and reconciliation in educational settings through culturally competent evolution instructional methods.

Notes

¹David Papineau, "Naturalism," in E. N. Zalta, ed., *The Stanford Encyclopedia of Philosophy* (Summer 2021 Edition), <https://plato.stanford.edu/archives/sum2021/entries/naturalism/>.

²William Jaworski, "Why Materialism Is False, and Why It Has Nothing To Do with the Mind," *Philosophy* 91, no. 2 (2016): 183–213, <https://doi.org/10.1017/S0031819116000036>.

³David Ray Griffin, *Religion and Scientific Naturalism: Overcoming the Conflicts* (Albany, NY: SUNY Press, 2000), 11.

⁴Sy Garte, "Teleology and the Origin of Evolution," *Perspectives on Science and Christian Faith* 69, no. 1 (2017): 42–50, <https://www.asa3.org/ASA/PSCF/2017/PSCF3-17Garte.pdf>.

⁵For example, M. Elizabeth Barnes and Sara E. Brownell, "A Call to Use Cultural Competence When Teaching Evolution to Religious College Students: Introducing Religious Cultural Competence in Evolution Education (ReCCEE)," *CBE – Life Sciences Education* 16, no. 4 (2017), <https://doi.org/10.1187/cbe.17-04-0062>.

⁶See M. Elizabeth Barnes et al., "'Accepting Evolution Means You Can't Believe in God': Atheistic Perceptions of Evolution among College Biology Students," *CBE – Life Sciences Education* 19, no. 2 (2020), <https://doi.org/10.1187/cbe.19-05-0106>.

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DAWN: A Proton's Tale of All That Came to Be by Cees Dekker, Corien Oranje, and Gijsbert van den Brink. Translated by Harry Cook. Downers Grove, IL: InterVarsity Press, 2022. 166 pages, discussion questions. Paperback; \$22.00. ISBN: 9781514005668.

Imagine that you could witness the entire history of the universe first-hand, from the big bang to the end of time. Perhaps, if you were a sentient yet patient proton, you would have the necessary longevity and attention span, and this idea could become your reality. Such is the premise of *Dawn: A Proton's Tale of All That Came*

to Be. "Pro," as the proton protagonist is known to his chatty neighboring subatomic particles, is born from quarks in the first second after the big bang, blind and knowing nothing, but with an insatiable curiosity about what is happening, and why. Conversations with other particles born a split-second earlier soon produce in Proton a deep admiration for a skilled Creator, and a sense of wonder and anticipation about what they have seen and what will happen next.

Throughout several chapters, Pro confusedly and vividly experiences the onset of light, nuclear fusion, a supernova, and incorporation into a molecule as part of a carbon nucleus. Pro ends up in the dust cloud that forms Earth, eventually witnessing the origin of terrestrial life as part of an RNA molecule. A rumor among the subatomic particles that the Creator wants to make personal contact with one of the creatures generates a guessing game as they witness the progress of evolution. Which lifeform will it be?

When *Homo sapiens* arrive on the scene, the story shifts to tracking biblical narratives, and the subatomic particles begin asking each other more theological questions. The Creator makes contact with two humans, a chieftain couple in Africa. The Fall ensues when the couple and their tribe reject the Creator's instructions, much to the subatomic particles' surprise and horror. Pro and his neighbors are then able to witness key moments in the progress of redemption, becoming fly-on-the-wall observers to events in the lives of several important biblical characters. "How is the Creator going to fix things?" the particles ask each other.

At this point it becomes apparent what a colossal challenge the three authors (a nano scientist, a novelist, and a theologian)¹ have taken upon themselves. They have tried to produce a gripping narrative in which the protagonist does not know the outcome, but Christian readers will. They have set out to tell an entertaining story of the history of the universe from a Christ-centered perspective, filled with imaginative details that are consistent with modern science but also with the biblical witness. They have charged into a literary no man's land between fiction and nonfiction.

Do they succeed? In many ways, admirably so. The merging of science and biblical witness is skillfully accomplished, respecting the integrity of each source of knowledge. To readers of this journal, the idea of a Creator patiently guiding the evolution of the universe and of life over billions of years in order to generate Earth and its humanity, followed by the increasingly intimate involvement of that Creator in redeeming humanity, is familiar. To many others, this idea will be revelatory.

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If evaluated as a work of fiction, it would be safe to say that *Dawn* is wildly imaginative, yet it is also strangely hindered by the passivity of the narrating subatomic particles. “Imagine that you yourself could determine where you would like to go” (p. 28), they muse just before the first protocell develops. Pro witnesses and experiences history but cannot intervene. The subatomic particles can react, but they have no agency in the macroscopic world. They do not embark on a quest or a voyage of self-discovery. “Just go with the flow” (p. 29), one advises. The tropes of fiction, however, are probably the wrong standards for evaluating this book.

Dawn succeeds, in the end, as creative nonfiction—the memoir of a proton. Along the way, it retells the old, old story in an imaginative way. The authors have created one of the most accessible books on science and Christianity to come out in recent years. Even young adults will be able to enjoy it.

Note

¹Cees Dekker, distinguished nano-scientist at Delft University of Technology; Corien Oranje, novelist/theologian and author of Christian children’s literature; and Gijsbert van den Brink, theologian and holder of the Chair of Theology and Science, Vrije Universiteit Amsterdam.

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FRACTALS: The Secret Code of Creation by Jason Lisle. Green Forest, AR: Master Books, 2021. 224 pages. Paperback; \$29.99. ISBN: 9781683442400.

Fractals: The Secret Code of Creation, by Jason Lisle, is a beautifully crafted coffee-table book which invites readers not only to the beauty of mathematics, but also to belief in Christianity. The author is affiliated with Answers in Genesis and is a founder of the Bible Science Institute, both of which insist on a young earth interpretation of Genesis 1–3.

The mathematical chapters are well written, but the book is really an apologetic for a narrow Christian worldview. The book claims that mathematics, particularly the Mandelbrot fractal and similar objects, displays God’s nature. The first chapter, “The Secret Code,” claims that “those who reject God like to explain the complexity of biological life by appealing to Darwinian evolution,” but that mathematics is free from this “because numbers do not evolve.” The fractals in this book, beginning with the Mandelbrot set, give an “infinitesimal glimpse into the mind of God” (p. 9). This sets the theme: there are only two worldviews, and these are in direct competition. The mathematics of fractals is to lead the reader toward the Christian worldview, indeed to a “secret code.”

A computer-generated example of a fractal, introduced by Benoit Mandelbrot,¹ is created in the complex plane by iterating the quadratic function $f(x)=x^2+c$. Pick a complex number c and examine the sequence $c, f(c), f(f(c))$, and so on. Ask the question, “Do these iterates of the function form a bounded sequence?” If the sequence is bounded, then the complex number c is in the Mandelbrot set. In the complex plane, color that point, c , black. If the sequence $c, f(c), f(f(c)), \dots$ is *not* bounded, give c a color based on the speed of growth of the sequence. Use a modern computer to color the points in the complex plane. With this coloring, the mathematical analysis of the Mandelbrot set gives rise to intricate paintings of the complex plane.

After this introduction, the book describes the required mathematical material: sets, complex numbers, function iteration. The mathematical descriptions are well done and intended for a popular audience. There are no frightening equations to drive away the reader. The prose, along with the accompanying artwork, is inviting. One might use much of this book as an invitation into the study of mathematics. Indeed, many mathematicians have used the study of fractals to do just that.

Chapters two through seven explore the mathematics of the Mandelbrot set with text-printed elegant pictures of various regions of the fractals. Chapters two through five, with picturesque titles—“Valley of the Seahorses,” “Valley of the Double Spirals,” “Infinite Elephants, Scepters on Seahorses”—focus on a particular region of the Mandelbrot set, zooming in to display intricate spirals, bays, peninsulas. The infinite complexity of these drawings is beautiful and agrees with my belief that mathematics is the language of the great artist.

The sixth chapter, “Changing the Formula,” asks what happens if the simple quadratic $f(x)=x^2+c$ is replaced by other quadratics. It is shown, by examples, that other quadratics merely transform the Mandelbrot set, shifting it in some obvious manner. A mathematics student comfortable with function transformations will recognize that any quadratic function can be transformed into any other quadratic—this is the essence of the quadratic formula—and so it should not be surprising that nothing new is achieved by replacing one quadratic by another.

Later chapters replace a quadratic function by other polynomials, then by functions involving fractional exponents, then by a conjugate function and finally by trigonometric and exponential functions. Euler’s marvelous identity $e^{i\theta} = \cos\theta + i\sin\theta$ briefly comes into play, linking trigonometric and exponential functions in the complex plane. In all these chapters, the mathematical explanations are kept simple, and the beautiful artwork continues. The chapter, “Geometric and 3D Fractals,”

asks about higher dimensional figures and introduces the quaternions. The chapter does not go deeply into the material but intends to leave the reader curious and intrigued. The concluding chapter describes occurrences of fractals as physical objects in nature (shorelines, clouds, trees, etc.), returning to the topic found in Mandelbrot's introductory book.

Chapter 8, "Fractals and the Christian Worldview," is an interlude to the mathematics, returning to the claim that of the two suppositions, a Christian or a non-Christian worldview, only the Christian worldview truly explains fractals. Yes, the infinite complexity of the Mandelbrot set is beautiful. Many mathematicians agree that beautiful objects like this are independent of human thought, a form of mathematical *platonism*. But the leap from mathematical *platonism* to belief in a creator and then to belief in the biblical God is not well supported by Lisle. He ignores the difficulties involved in these steps: first from mathematical *platonism* to deism, and then from deism to belief in the God that Christians worship.

In the final (twelfth) chapter, Lisle returns to his argument that mathematics points to the God of the Bible. He quotes physicist Eugene Wigner's article, "The Unreasonable Effectiveness of Mathematics in the Natural Sciences," which discusses the "miracle" of mathematics in explaining the modern world.² Lisle then quickly dismisses other religious views and claims that only the Bible makes sense of our universe. The book ends with a gospel presentation.

One can argue (Rom. 1:20) that God's divine nature is visible in the beauty of mathematics, but Lisle quickly dismisses the beliefs of atheists and non-Christian religions and leaps to claiming (as implied by the book's subtitle) that the *only* legitimate reaction to fractals is to believe in the Christian God. While most of my mathematical colleagues identify with mathematical *platonism*, their beliefs vary across a spectrum from atheism/agnosticism through Judaism, Islam, and Christianity. The jarring leap from "the beauty of fractals comes not from people" (p. 125) to the Christian worldview, will leave a thoughtful skeptic with whiplash. At no place is the "secret code" to creation explained explicitly.

Lisle's approach to apologetics is that of presuppositionalism. He assumes that only a Christian worldview is reasonable. However, presuppositional apologetics has several significant flaws. It can quickly become a circular argument: if one assumes the truth and accuracy of the Bible as an axiom then the Christian worldview is a foregone conclusion. This approach receives quick approval from people who already believe the scriptures but is readily dismissed by the sceptic. Even when the circular argument is avoided, the best one can argue is that the universe—and mathematics—appears to be

beautiful, appears to have design. The appearance of design is roughly equivalent to mathematical *platonism* and parallels the argument of Romans 1. But the sceptic who accepts this argument will immediately point out that there are many worldviews that begin with this assumption. The leap to the Christian worldview is not proven by this approach; it requires the additional confirmation of special revelation.

In other publications, Lisle rejects both the big bang theory and evolution. Ironically, this beautiful book on fractals makes it clear that elegant and complex structures do indeed arise from quite simple processes. This is a concept that underlies the theory of evolution, which Lisle opposes.

Would I put this book on my coffee table? No, because ultimately this book is an attempt at apologetics. The flaw in the apologetics will be apparent to the thoughtful sceptic. And the author's attempt to establish the Christian worldview includes simplistic claims that are dismissive of people with other beliefs.

Notes

¹Benoit B. Mandelbrot, *The Fractal Geometry of Nature* (New York: W. H. Freeman, 1982).

²E. P. Wigner, "The Unreasonable Effectiveness of Mathematics in the Natural Sciences," *Communications on Pure and Applied Mathematics* 13 (1960): 1-14.

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HISTORY OF SCIENCE

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GENERATIONS OF REASON: A Family's Search for Meaning in Post-Newtonian England by Joan L. Richards. New Haven, CT: Yale University Press, 2021. 456 pages, with 21 b/w illustrations, 1,218 end-notes, and a 35-page index. Hardcover; \$45.00. ISBN: 9780300255492.

The title gives no clue who this book is about. Nor does the publisher's description on its website, the abbreviated blurb inside the book jacket, the four endorsements posted on the jacket's back ("beautifully written," "epic masterpiece," "magnificent study," "compelling and wide-ranging"), or even the chapter titles. The reader first learns whom the book is about and how it came into focus in the author's Acknowledgments. In studying the divergent interests of Augustus De Morgan and his wife, Sophia, the importance of De Morgan's father-in-law William Frend's thinking became apparent. This is turn led Richards to delve into the lives and beliefs of two ancestors from the previous generation, Francis Blackburne and Theophilus Lindsey, who felt compelled by their commitment to "reasoned conclusions about

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matters of faith" (p. x) to move away from orthodox Anglicanism and establish the first Unitarian church in England. Thus the book eventually evolved into chronicling the lives of three generations over a century and a half during (roughly) the Enlightenment era.

A central motif running through the experiences, beliefs, and work of these families was their steadfast commitment to a form of enlightened rationality that provided coherence and foundational meaning for their lives. Reason informed their ecclesiastical commitment to Unitarianism, their views of science and mathematics, and their public activity favoring social and educational reforms. But also, paradoxically, their search for reason led to the beliefs and practices (of some family members) that today would be considered pseudo-scientific – mesmerism, phrenology, and spiritism, among others.

As Richards notes in the book's opening sentence, for her, *Generations of Reason* is "the culmination of a life devoted to understanding the place of mathematics in modern European cultural and intellectual history." The mathematics and logic of early- to mid-nineteenth-century Britain has been an ongoing research interest for Richards during her forty-year tenure as a historian of mathematics at Brown University. It is this that largely drew me to the book and which I will focus on here: it climaxes in a substantive treatment of the progressive mathematics of De Morgan, whose work contributed to transforming British algebra and logic. This is in stark contrast with the radical ideas of Frend, who refused to admit negative numbers into mathematics.

A central figure behind the developments under investigation is John Locke, whose *Essay Concerning Human Understanding* (1689) and *The Reasonableness of Christianity, as Delivered in the Scriptures* (1695) exercised a tremendous influence over and challenge for eighteenth- and nineteenth-century British thinkers. Locke's ideas defined and emphasized rationality in relation to knowledge generally and to scientific and religious knowledge in particular, providing dissenters with a rationale for combatting traditional theology and conformist science and philosophy. For Locke, however, a literal reading of Scripture was still authoritative for religious beliefs. This was true for Frend and De Morgan also, even though they held tolerant attitudes toward a wide latitude of thinkers.

Locke's view of reason also affected period reflections on mathematics. Like others in the early modern and Enlightenment eras, Locke had held up mathematics as a model of absolutely certain knowledge because of the clarity of its ideas and the supposed self-evidence of its axiomatic truths. Of course, this characterization applied more to Euclidean geometry than to the

burgeoning domains of analytic mathematics, such as calculus, which, as Berkeley charged, still lacked a sound theoretical basis. As for logic, Locke had an acute antipathy toward traditional argument forms and proposed that one should reason with ideas rather than words, assessing their agreement or disagreement in less convoluted ways than in a syllogism. In expressing such relations with language, though, one should use meaningful and unambiguous terms. This was somewhat problematic in algebra and calculus, where symbolic expressions were manipulated to produce useful and important results, even when their meaning was less than clear.

Around the turn of the nineteenth century, Frend campaigned to bring algebra in line with Lockean reasoning: algebra was conceptualized at that time as universal arithmetic, containing such laws as the transposition rule *if $a + b = c$ then $a = c - b$* . Thus, no expression should be employed if its meaning was unintelligible. In the above equations, one must assume the condition $b < c$ to rule out negative values, since numbers, which represent quantities of discrete things, cannot be less than 0. Excising negative quantities from mathematics was extreme but necessary in order to adhere to a literalistic view of rationality.

British mathematicians largely resisted following Frend down this path of purity, though they were unsure how to rationally justify their use of negative and imaginary quantities without going outside mathematics and appealing to things like debts. Robert Woodhouse, in an 1803 work, was one of the first Cambridge mathematicians to propose a more formalistic algebraic approach in calculus. This agenda was furthered a decade later by members of Cambridge's Analytical Society, one of whom was George Peacock. His and others' attempts to convert Cambridge analysis from Newtonian to Leibnizian calculus were waged through translating a French textbook and making notational changes in Cambridge's mathematical examinations.

In 1830 Peacock's *Treatise on Algebra* introduced a more formalistic approach in algebra. Richards argues, drawing upon some fairly recent research, that Peacock's position was grounded in a progressivist view of history: arithmetic developed naturally out of fluency with counting, and algebra out of familiarity with arithmetic. Arithmetic suggests equivalent forms (equations, or symbolic assertions like the above rule) that can also be accepted as equivalent/valid in algebra without being constrained by restrictions appropriate to arithmetic. Such transitions, he thought, constitute genuine historical progress. Algebra thus splits into two parts for Peacock, arithmetical algebra and symbolical algebra, the latter based upon his principle of the permanence

of equivalent forms, as found in his 1830 *A Treatise on Algebra*.

Peacock's approach to algebra set the stage for later British mathematicians such as De Morgan (Peacock's student), Boole, and others. Initially inclined to follow his future father-in-law's restrictive approach in algebra, De Morgan was soon won over to Peacock's point of view, even going beyond it in his own work. In a series of articles around 1840, De Morgan identified the basic rules governing ordinary calculations, but he also began entertaining the notion of a symbolical algebra less tightly tied to arithmetical algebra. By more completely separating the interpretation of algebra's operations and symbols from its axioms, symbolical algebra gained further independence from arithmetic. This gave algebra more flexibility, making room for subsequent developments such as the quaternion algebra of William Rowan Hamilton (1843) and Boole's algebra of logic (1847).

After exploring the foundations of algebra, De Morgan turned his attention to analyzing forms of reasoning, a topic made popular by the resurgence of syllogistic logic instigated at Oxford around 1825 by Richard Whately. Traditional Aristotelian logic parsed valid arguments into syllogisms containing categorical statements such as *every X is Y*. De Morgan treated such sentences extensionally, using parentheses to indicate total or partial inclusion between classes *X* and *Y*. Thus, every *X* is *Y* was symbolized by $X)Y$ since the parenthesis opens toward *X*; to be more precise, one should indicate whether *X* and *Y* are coextensive or *X* is only a part of *Y*. By thus quantifying the predicate, as it was called, De Morgan allowed for these two possibilities to be symbolized respectively by $X)(Y \text{ and } X))Y$, in compact symbolic form as $'(' \text{ and } ')'$. Combining the two premises of a syllogistic argument using this notation, one could then apply an erasure rule to draw its conclusion. De Morgan enthusiastically elaborated his symbolic logic by adopting an abstract version of algebra that paved the way for operating with formal symbols in logic. De Morgan's symbolism is not as inaccessible as Frege's later two-dimensional concept-writing (though the full version of De Morgan's notation is more complex than indicated here), but it is still rather forbidding and failed to find adherents.

In addition to expanding Aristotelian forms by quantifying the predicate, yielding eight basic categorical forms instead of the standard four, by 1860 De Morgan was generalizing the copula "is" in such sentences to other relations, such as "is a brother of" or "is greater than." He began to systematically investigate the formal properties of such relations and the ways in which relations might be compounded. Though intended as a way to generalize categorical statements and expand

syllogistic logic, his treatment of relations was later recognized as an important contribution that could be incorporated into predicate logic. Richards's treatment gives the reader a fair sense of what De Morgan's logic was like, and while a detailed comparison is not developed, the reader can begin to see how De Morgan's system compares to Aristotelian logic, Boole's algebra of logic, and contemporary mathematical logic.

However, as indicated at the outset, exploring De Morgan's algebraic and logical work is only a subplot of Richards's story. Her book is principally a brief for how reason grounded the work and lives of several significant thinkers in an extended family over three generations. As she ties various threads together, the reader occasionally senses that the presentation may be too tidy, drawing parallels between vastly different developments to make them seem of a piece, all motivated by the same driving force of reason. Nevertheless, Richards's account forces the reader to continually keep the bigger picture in mind and to connect various facets of the actors' lives and work to their deeper commitment to reason. Her book thus offers a commendable case study for how technical trends in mathematics might be tied to broader cultural and philosophical concerns.

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OF POPES & UNICORNS: Science, Christianity, and How the Conflict Thesis Fooled the World by David Hutchings and James C. Ungureanu. New York: Oxford University Press, 2022. 263 pages. Hardcover; \$39.95. ISBN: 9780190053093.

Readers of *PSCF* are familiar with the "warfare thesis" for the history of science and religion. This interpretation, framed as a historical analysis that stretches from the ancient Greeks to the modern period, explains the way in which science and religion have always been in conflict with each other. At the center of this interpretation are John William Draper's *History of the Conflict between Religion and Science* (1874), and Andrew Dickson White's *A History of the Warfare of Science with Theology in Christendom* (1896). Since the publication of these books, numerous professional historians as well as the general public have accepted and perpetuated many of the claims made within them. The problem with this line of interpretation, however, is that Draper and White were often wrong. For instance, Christopher Columbus (and people in the medieval period) did not think the earth was flat. Christians did not oppose anesthesia. There was no Dark Ages. Christians did not believe in unicorns. Premodern medical diagnosis did not merely appeal to supernatural causation. And the list could continue.

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Instead, as Hutchings and Ungureanu explain over the course of their nine chapters, Christianity—and especially medieval Christianity—was hyper-rational and actively engaged in scientific thought. So, despite the continued influence of Draper and White since the nineteenth century, Hutchings and Ungureanu successfully demonstrate many errors with the historiographical tradition of the warfare thesis. In fact, as the authors argue, there were ways in which science borrowed from theology. This is most noticeable in the utilization of theology to explain science in the period known as the Scientific Revolution, which the authors address in chapter eight, “Old Dogma, New Tricks.” Another helpful chapter pertains to the way the ideas of Draper and White resonated with others in the nineteenth century, thereby demonstrating how these two well-known intellectuals were not mere “lone voices.” This latter point is a particularly helpful contribution to the topic’s historiography, as this type of contextualization is oftentimes forgotten when considering Draper, White, and the warfare thesis.

It is for these reasons and others that many will find this book a helpful aid. The tone is conversational, and the citations are relegated to endnotes at the back of the book. The book also draws upon some of the best scholarship in the history of science from the past fifty years, such as the works of Edward Grant, Bernard Lightman, and the more recent contribution of Seb Faulk. One of the fortunate outcomes, then, is that the reader who reads between the lines will discover a masterful account of the ways in which the field of the history of science has effectively dismantled the warfare thesis, and in its wake established a robust understanding of the complex historical relationship between science and religion. The reader of the book will also be provided with an abbreviated version of one of the authors’ works, James Ungureanu’s *Science, Religion, and the Protestant Tradition* (2019), which is summarized in chapter seven, “Bridges Badly Built.”

For all its merits, there is one point made occasionally that gives this reviewer pause. At times, the authors come close to ascribing a causal link between Christianity and science, such that Christianity was a dominant driver of scientific development. For instance, in chapter eight, wherein the authors address the positive influence of Christianity on science, they claim that “Christian dogma has actually played a major part—indeed, many have argued the major part—in establishing the foundations of the science that is so successful today” (p. 196). It shows up similarly at the end of chapter seven, with an even greater causal connection between Christianity and science. The point in chapter eight is substantiated by a reference to Noah Efron’s chapter in *Galileo Goes to Jail*, titled “That Christianity Gave Birth to Modern Science.” While Efron does ascribe an important role to

Christianity in scientific development, he stops short of identifying it as *the* sole cause. Among the reasons for this, as Efron notes, is that it then becomes problematic to include the contributions of non-Christians to science. Yet, the reader *Of Popes & Unicorns* would not be informed regarding the potential error in over-attributing a causal connection between Christianity and science. In a book aiming to reframe the relationship between science and religion, one would have hoped that they would have nuanced this point, even if in the end they chose to argue for the importance of Christianity on scientific development.

This issue aside, the book is an important contribution to the study of the warfare thesis. Readers of this journal are perhaps aware of previous books on the topic, the most prominent one being *Galileo Goes to Jail* (2009). Those that are familiar with that book will find a certain amount of overlap in this one, though not complete synonymy. One clear merit is that this book is a comprehensive story, and not discrete chapters. As a result, its content will likely be utilized in many different contexts and read for many years to come.

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MAGIC, SCIENCE, AND RELIGION IN EARLY MODERN EUROPE by Mark A. Waddell. Cambridge, UK: Cambridge University Press, 2021. x + 220 pages, including an annotated bibliography and index. Paperback; \$25.99. ISBN: 9781108441650.

For decades, it has been commonplace among historians of science to recognize the essential interconnections between Christianity and the early origins of the natural sciences, even if some non-historians continue to struggle to relinquish the more titillating revival of a conflict between them. The reality is that the social and intellectual history of theology and natural philosophy have vast overlapping boundaries. The history of the modern natural sciences is no less continuous with the ideas and practices of magic, alchemy, and astrology. While Enlightenment sensibilities chafe at the notion, historical research, much in the same vein as studies in “Science and Religion,” is incontestable. Mark A. Waddell’s brief introduction to the subject quickly brings the reader into this consensus without sacrificing the nuance needed to avoid oversimplification.

The strongest chapters are in the first half of the book, where Waddell introduces the Renaissance interest in Hermetic philosophy (chap. 1), then newly discovered among ancient texts (though not so ancient as they were first thought to be). The author proves to be a practiced communicator, able to simplify and condense a

range of philosophical principles. He also succeeds in connecting philosophies with the perennial social problems and questions of ordinary human experience. In this way, he is consistent with a long line of scholars writing on the subject, from Keith Thomas's, *Religion and the Decline of Magic* (1971) forward. The subject of witchcraft and demonology (chap. 2) is treated as the manifestation of social anxieties within European culture more generally.

The broadest principle of magic is covered in chapter 3, "Magic, Medicine, and the Microcosm," in which Waddell explains the overarching analogy between the greater universe out there and our mundane existence down here. This forms the basis for both astrology-based medicine (noting concordances between either herbs or organs with their astrological counterparts and using them to heal) or judicial astrology, which sought to understand the past and map the future by virtue of astrological motions. And Waddell presents this as a normal part of early-modern thinking among churchmen and commoners alike.

The second half of the book covers topics which may be more easily recognized as parts of modern natural science: Galileo, Copernicus, Boyle, and Newton. Chapter 4, "A New Cosmos," uses a most creative and pedagogically sensitive introduction to the radical proposal of a world system in which the earth is not motionless and at the center of the universe. Waddell uses the demotion of Pluto from planetary status in 2006 and the subsequent public backlash, and asks the reader to imagine, *a fortiori*, how the public might react to an even greater disruption of received astronomical dogma, however empirically informed. Waddell returns again in chapter 5, "Looking for God in the Cosmic Machine," to ancient philosophy, showing how Epicurean atomism presented an old philosophical problem anew in the philosophies of René Descartes and Pierre Gassendi, focusing on the question of the nature of the soul. Here the continuity of ancient and new philosophies is maintained, illustrating the ongoing development and connected history between modern natural science, magic, and religion.

That continuity might have been better represented with more emphasis on the philosophy of Aristotle and scholasticism. While Aristotle's philosophy is discussed in several places throughout the book, such as in the discussion above on the soul, a dedicated chapter would have been appropriate given the dominance of Aristotle in Western intellectual culture from the end of the thirteenth century through the end of the seventeenth. This weakness of the book was evident in chapter 6 in the section on Francis Bacon and the inductive method. Waddell says,

Bacon founded his ideas about experience and experiment on what is known as *inductive reasoning*, or *induction* ... In choosing to focus on singular observations, Bacon was of course doing exactly what Aristotle taught his students *not* to do. (p. 166)

Aristotle never gave such instruction. In fact, Aristotle describes induction in his *Posterior Analytics*, *Book I*, in the first sentence:

All teaching and learning of an intellectual kind proceed from pre-existent knowledge ... Similarly with arguments, both deductive and inductive: they effect their teaching through what we already know, the former assuming items which we are presumed to grasp, the latter proving something universal by way of the fact that the particular cases are plain. (Barnes translation, 1975)

Waddell misses that Bacon's emphasis on induction was not novel except in emphasis. The new science was an extension of old principles newly revived.

This introduction closes with a coda, extending briefly into the Enlightenment. This section is handled a little too quickly, but well enough to present some of the subtleties necessary to link it to its past. Not only does he present how Enlightenment intellectuals were embarrassed by Newton's alchemical adventures, but how the mechanical forces of modern science themselves still betray underlying occult qualities that formerly traveled under other names.

The author often used the word "problematic" (over twenty times) throughout the book: for example, in the sentence, "It is important to note that, however problematic the idea of a mechanical universe might have been, it did not disappear." The author uses the word so often, it is unclear if he merely means something less specific, like "challenging," as in "difficult to absorb" in one's concepts of the natural world, or more narrowly as something that violates social and political norms. Since Waddell in other places in the book seeks to contextualize these events of four hundred years ago within a modern idiom, it is at least plausible that he wishes us to connect the intensity of the social dramas of today with those past events. If so, an explicit recognition of that would have been helpful to the reader.

This book is suitable for an undergraduate course in the history of science, especially if flanked by primary source readings under the guidance of the instructor. A person with no background in the subject would also find this an accessible entry point into the subject, from which they could move on to more detailed studies, such as those noted in the bibliography.

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THE SOUL OF DESIRE: Discovering the Neuroscience of Longing, Beauty, and Community by Curt Thompson. Downers Grove, IL: InterVarsity Press, 2021. 238 pages. Hardcover; \$27.00. ISBN: 1514002108.

The Soul of Desire sparks the reader's curiosity with the title. Often we relate desire to things we want but view as shameful or dysfunctional in life, such as sex, money and power. Although briefly addressing those things, this book takes the reader to a deeper level of understanding and applying God's definition of desire. Thompson uses art and personal narratives with the integration of theology, psychology, psychiatry and interpersonal neurobiology to help the reader see God's intent for beauty out of brokenness.

The first section of the book outlines the concept of desire. Thompson defines desires as what we want and long for. It is primal for humans to desire although we often don't understand why. It is innate but also must be cultivated and pruned. It is shaped by the practices and habits we develop: the expressions of our intention. Often our desires have less to do with what God longs for us to desire, himself, and more to do with being able to compete in the world – to be adequate and acceptable in the eyes of others (p. 13). He goes on to emphasize Jesus's interest in our desires. Jesus asks us to name our desires in John 1:38, "What do you want?" He argues that, often, we do not name our desires because we fear they may fall outside of the boundary of what God or others see as acceptable. But in not naming our desires, we become bored and depressed (p. 191). We are not living to our full potential.

God's intent is for beauty out of brokenness which we are able to see only when we allow ourselves to be vulnerable. How the brain processes interactions is based on past experiences, which often include trauma and shame. In Thompson's first book, *The Soul of Shame*, he unpacks this concept of shame and how it affects every aspect of our personal and vocational endeavors. It seeks to destroy our identity in Christ. Within this second book, he goes on to elaborate how beauty begins and ends with God, our relationship with God, and with each other. Our primal desire is not only to be known, but also to be curators and creators of beauty (p. 33). He emphasizes that in order to do this, we must learn to think of our story in a different way. God does not point out our sin merely in order to forgive us so we will go to heaven, nor does he identify our trauma and shame in order to heal them simply that we might feel better about ourselves. Instead,

he is transforming us—creating us anew—to re-commission us to do the work of new creation along with him. In this sense, God sees us not as problems to be solved or broken objects to be repaired but as beauty on the way to being formed. Sin, then, is what keeps us in a posture of resisting God's desire for creating beauty in, with, and through us. (p. 45)

Throughout a large portion of the book, Thompson is laying out how to move from trauma and shame to a new creation, by means of interpersonal neurobiology. This becomes a lived experience for participants within confessional communities. These communities are designed to enhance integration of the mind's nine domains of functional activity.

This leads to the development of earned secure attachment, primarily through providing the opportunity for participants to be seen, soothed, safe, and secure and bolsters the social engagement system while enabling participants to widen their windows of tolerance, which prevents them from moving into stages of hyper- or hypo-arousal. These processes hinge on participation in a setting where the deep desire to be known is met. (p. 40)

In order to help the reader visualize how these communities work, he intertwines stories from various participants to demonstrate the process. The goal for each participant, in telling their story, is to name their desires and griefs and do the work of lament as a means of creating beauty in order to reach sanctification (p. 97). In order to go through these stages, participants must be willing to dwell on, to spend time with, and to contemplate these questions: "Where am I?" in reference to the mind, thoughts, and emotions; and "With whom am I living?" in reference to who else consumes our thoughts.

Thompson does an outstanding job of helping the reader process each phase that participants in the communities must go through (imagine, dwell, gaze and inquire) in order to attain their desires, all while connecting each phase back to the process of sanctification in order to move closer to the new creation. He uses the Easter story to help the reader understand. Without Easter there is no story, "... to see how beauty is coming to find you, calling to you in your grieving, traumatized, disintegrated life in order to transform the crucifixion of your soul into the beauty of resurrection" (p. 90).

The book ends with descriptive ways in which groups of people can use this process to start to move toward implementation of a confessional community within various settings. Although this was helpful, it left the reader wanting to know more about the process, to understand how to apply the process more effectively.

I would recommend this book to anyone who wants to build a sense of community within a group of people. Simply understanding the process of how humans develop a sense of belonging that can end in beauty strengthens the human and spiritual connection.

Overall, the book does an excellent job of identifying the true desires of the human soul. Thompson effectively connects the dots between science and faith through the lens of beauty and relationship. He incorporates the mind of a biblical scholar, the wisdom of a psychiatrist and researcher, and the heart of a pastor through biblical narratives, stories of the human experience and neuroscience. He encourages us; even in a broken world, God can work through authentic and vulnerable community to create beauty from places of trauma, and he can make all things new.

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Ψ PHILOSOPHY

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DIVINE ACTION AND EMERGENCE: An Alternative to Panentheism by Mariusz Tabaczek. Notre Dame, IN: University of Notre Dame Press, 2021. xviii + 346 pages. Hardcover; \$75.00. ISBN: 9780268108731.

In his classic *History of Western Philosophy*, Bertrand Russell refers to the Greek atomists, with their view of reality as consisting of atoms in a void, as a “point of view ... remarkably like that of modern science ...” Russell’s reductionistic characterization of natural science was already showing its age when the book was published in 1946. And in the years since, those words have only become more dated with the rise of various models of emergence which offer endlessly novel ways to understand the ontological richness of nature.

While ontological emergence offers rich new ways of conceiving nature, it also brings novel challenges. Consider, for example, the problem of agent causation. Many Christian theologians throughout history have appealed to a substance dualist model of the self, but these models have generally fallen out of favor, not least because they appear to violate the principle of interdependence and the metaphysical inclusivity of ontological levels (p. 44). While ontological emergence proposes that mental states supervene on physical states, it becomes very difficult to conceive how, on this model, the mental can bring about changes in the physical. The dilemma, in short, appears to be between epiphenomenalism (i.e., mental events do not cause anything) and causal overdetermination (i.e., both prior brain states and mental intentions bring about subsequent brain states) (cf. pp. 36–37).

This strange new world of ontological emergence not only poses a challenge to, but also presents an opportunity in several fields. This includes theology where it has spurred the exploration of various novel models of divine action. Arguably, the most significant trend of note in this regard has been the rise of panentheistic models of the God/world relation. While panentheism goes back centuries, it has firmly entered the mainstream with the complex models proposed by scholars such as Arthur Peacocke and Philip Clayton.

While panentheistic models of the emergent world offer new avenues of theological exploration, they also offer a range of challenges. For example, by construing God as one agent among others, they face the problem of a causal joint at which divine action (e.g., as energy or pure information) providentially enters into and thereby guides natural processes. One way to avoid that problem is by construing ontological gaps and God’s action as occurring everywhere in space and time (p. 150). On the downside, this account threatens to lose the distinctiveness of particular instances of divine action. Other challenges to panentheism include the basic question of meaning: that is, what does it even mean to say God is in the world or that the world is God’s body?

Given the difficulties with panentheistic accounts of divine action in a creation rich with ontological emergence, could there be another way of conceiving of divine action? At this point, I am reminded of the famous G.K. Chesterton quote: “The Christian ideal has not been tried and found wanting. It has been found difficult; and left untried.” Might it be that this is true of classical theism as well? Might classical theism in general, and Thomism in particular, offer rich resources to explore the complexity of divine action in a nature rich with ontological emergence?

Mariusz Tabaczek believes so, and in *Divine Action and Emergence* he develops a penetrating critique of the panentheistic turn while defending a return to the resources of classical theism, and specifically the work of Aquinas. Tabaczek develops his model, which seeks to re-pristiniate an Aristotelian and Thomistic account of causation, in dialogue with Terrence Deacon’s exploration of emergence, through the category of absence and creative potential. Tabaczek puts his own spin on that intriguing (if rather obscure) concept with an exploration of Aquinas’s Aristotelian four-fold model of causation.

To begin with, Tabaczek argues that God should be viewed as the efficient cause of all creaturely being. However, God does not act on the same ontological plane as creatures but rather as a principal cause that empowers creatures to act as instrumental causes in accord with their created dispositions. This double

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causation framework allows us to understand God's action as meticulous concurrence while also avoiding the danger of occasionalism by preserving the distinctiveness of created causal powers or dispositions. God also acts as formal cause through the granting of *esse* in accord with the exemplars of being in the divine mind. As God actualizes creatures they participate in the divine ideas. Finally, God creates and sustains creaturely being as final cause in accord with the *telos* of every being. Collectively, these spheres of divine action provide a framework to understand God acting meticulously at all levels of nature while maintaining the distinctiveness of created being, respecting levels of ontological emergence, and avoiding the challenges posed by localized discrete action at a specific causal joint.

Divine Action and Emergence is packed with insights and rewarding features, including a fascinating and detailed overview of the many recent models of emergence (chap. 1) and a clear and concise history of major panentheistic theologies down to the present. Time and again, I appreciated Tabaczek's ability to make multiple subtly nuanced distinctions as with his many possible interpretations of the seemingly innocuous preposition "en" in panentheism.

Not surprisingly, Tabaczek's model invites its own questions. While he addresses the problem of evil by appealing to an Augustinian concept of privation, I am not persuaded that this abstract notion is a very effective theodicy. It seems to me the problem of evil is not so much about an abstract absence of being so much as the undeniably real and all-too-concrete suffering of individual sentient beings, and that problem very much remains even if overlaid with an Augustinian ontology of evil.

Among the other challenges faced by this kind of Thomistic model of the God/world relation is the implication that God has no real relation with the world (p. 163), such that all changes in the world merely constitute Cambridge changes in God (i.e., changes not involving God's intrinsic nature). Tabaczek responds by citing Michael Dodds who claims that, in virtue of lacking a real relation with creation, God is "infinitely closer" (p. 165) to created being. This reminds me of the defender of impassibility who says God is not unloving but rather is already fully actualized in his being. Nevertheless, I suspect many critics will find this an unsatisfactory rejoinder and thus will still look for a "two-way relation" between God and the world. It is also worth noting that panentheism is certainly not the only way to establish this two-way relation.

Divine Action and Emergence provides a very detailed summary of the contemporary debate on emergence

and panentheism while offering a bold new proposal that promises to reinvigorate Aristotelian causation for our day. The book has many virtues including the aforementioned overview of the field of emergence theory and concise history of panentheistic theological models. By reconciling classical theism to contemporary work in emergence (most notably, that of Deacon), Tabaczek lands a serious blow against the popular notion that panentheism offers superior resources for conceiving divine action within an emergent framework. Along the way, he also retains the virtues of classical theism, including a robust commitment to divine aseity and transcendence, *creatio ex nihilo*, and meticulous providence alongside created autonomy and human free will.

This is a rich and dense book and is a must-have for scholars in the field as well as university libraries. While Tabaczek expresses the hope that the book will also find a readership among the clergy, I suspect the high level of technical discussion will limit its broader appeal.

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GOD, HUMAN, ANIMAL, MACHINE: Technology, Metaphor, and the Search for Meaning by Meghan O'Gieblyn. New York: Doubleday, 2021. 304 pages. Hardcover; \$28.00. ISBN: 9780385543828.

Meghan O'Gieblyn's *God, Human, Animal, Machine* is the most honest, insightful, and therefore challenging book of its kind I have ever read. Part intellectual memoir and part philosophy, it walks us through O'Gieblyn's journey away from the Christian faith of her youth toward seeing herself "more or less as a machine" (p. 7). God, she has become convinced, is a projection of the human imagination, a product of our solipsism. "For centuries we said we were made in God's image, when in truth we made him in ours" (p. 12).

This is such a common late modern narrative of disenchantment that the reader expects the usual suspects to follow. Namely, vitriol against the ignorance of theologians, and a solid articulation of the merits of scientific naturalism. But that is not what we get here. What we get is the kind of intellectual honesty that is willing to admit that if humans are inherently meaning-making creatures, then all of us could be getting it wrong.

O'Gieblyn maps her own disenchantment narrative onto that of the modern western world. Descartes couldn't be sure of anything but his being a thinking thing; Kant couldn't be sure that those thoughts had anything to do with the world as it actually is. Once you go through this door, the only honest position is that every human belief about ultimate reality is based on faith in something. She makes this point brilliantly through David

Chalmers, who endeavored to explain the idea (said of philosophers) that “one starts as a materialist, then one becomes a dualist, then a panpsychist, and one ends up as an idealist” (p. 180). Chalmers knows that each of these perspectives necessarily entails accepting different metaphorical lenses, none of which can be definitively proven by science or philosophy.

O’Gieblyn thus finds Bernardo Kastrup’s “shortcut through this trajectory” particularly fascinating. For Kastrup, consciousness is all that exists, and the “entire observable world is patterns of excitation” of a “universal mind” that is the cosmos (p. 185). “By the time you seriously consider all the options and their limitations,” O’Gieblyn writes, “the idea of God begins to seem just as crazy as anything else” (p. 185). She knows how this sounds, and immediately wonders if she’s predisposed to this position because of her previous faith and her desire for meaning. And she is correct: there can be no way out for the honest skeptic. “It’s not as though I never experienced God’s presence or guidance as a Christian; it was that I could not, as so many of my friends and classmates managed to do, rule out the possibility that those signs and assurances were merely narratives I was constructing” (pp. 187–88).

I found this refreshing precisely because O’Gieblyn knows it cuts both ways. If Christians and materialists could admit to sharing this limitation, we might have a new starting point for genuine, and possibly life-changing, conversations. O’Gieblyn has done her scientific and philosophical homework, and she’s found the stumbling stone for everyone: consciousness. For despite the arrogance of titles like Daniel Dennett’s *Consciousness Explained*, scientists and philosophers familiar with quantum physics know that there is a lot up for debate here. The hard problem of consciousness is not a God-of-the-gaps thing, where we tack the “mystery” label on something we can’t explain and then return to happy-clappy worship. It’s a whole world of weirdness, and God could be behind it all. Or not.

O’Gieblyn’s intellectual honesty leads her to be able to pinpoint exactly what it is she is rejecting when she rejects the Christian God. She identifies first with Job, and then with Ivan in *The Brothers Karamozov*. In a pivotal conversation between Ivan and Alyosha, Ivan can’t stomach the fact that God’s work in this world would require innocent children to suffer. He says, “I would rather remain with my unavenged suffering and unsatisfied indignation, *even if I were wrong.*” While O’Gieblyn’s Moody Bible Institute classmates saw Alyosha’s response of loving faith the point of the passage, “what the novel had made clear to me was that I deeply admired Ivan in his rebellion, just as I had admired Job in his” (p. 235). She was able to reconsider

her apostasy as an act of courage. She is not rejecting God, but a “system of human thought” (p. 236).

This frankness is reason enough for me to wish I could have a regular coffee date with O’Gieblyn. But I’m barely scratching the surface of this wide-ranging, insightful text that does an especially superb job of analyzing the ideology of digital culture. All cultural metaphors create meaning and then disappear from view as metaphor. The digital age’s primary metaphors (brain as computer; mind as nodes on a network) have left us with a particular view of being, “which might be described as an ontology of vacancy—a great emptying-out of qualities, content, and meaning. This ontology feeds into its epistemology, which holds that knowledge lies not in concepts themselves but in the relationships that constitute them, which can be discovered by artificial networks that lack any true knowledge of what they are uncovering” (p. 245). In short, in the twenty-first century, individuals don’t lead out of good character with altruistic motives. Memes gain influence not by being good ideas, but by being irresistible click-bait. Although O’Gieblyn describes this ideology with incredible journalistic restraint, there can be no doubt. This is our epistemological crisis, and it is not going anywhere anytime soon.

Carefully researched and beautifully written, *God, Human, Animal, Machine* provides an excellent starting point for meaningful discussion between atheists and believers. It is a valuable resource for anyone interested in the relationships between science, technology, and religion.

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TECHNOLOGY

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A CHRISTIAN FIELD GUIDE TO TECHNOLOGY FOR ENGINEERS AND DESIGNERS by Ethan J. Brue, Derek C. Schuurman, and Steven H. VanderLeest. Downers Grove, IL: IVP Academic, 2022. 226 pages including discussion questions, endnotes, credits, and indices. Paperback; \$28.00. ISBN: 9781514001004.

Finally! The long-awaited update to *Responsible Technology: A Christian Perspective* (Stephen V. Monsma, ed., Eerdmans, 1986) is here, and this new book is well worth the wait. Framed as a practical field guide for engineers, it is also adept at illuminating some of the philosophical issues that swirl around the interface of technology and Christian faith. Hearty pats-on-the-back to Ethan Brue, Derek Schuurman, and Steven VanderLeest for undertaking and completing this grand project in such fine fashion.

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It begins with an inspiring discussion of the connections between humankind's technological hopes and dreams and our ultimate hope in our Maker. Historical accounts and personal stories by each author will surely be an encouragement to young people who are curious about technology from a Christian perspective. Indeed, this book would make a good text for a university-level "Introduction to Engineering" course. The book continues with an insightful survey of how technology relates to the biblical story. This includes a discussion of humanity's first great commission to steward the earth, as well as the influence of fall, redemption, and re-creation on our engineering enterprises.

It gets even more interesting (and philosophical) as the authors next address the popular false narrative that all technology is inherently neutral. Several examples help to expose myths about the universal usefulness and neutrality of tools, the ends justifying the means, and forms of technological determinism. This is followed by a discussion of what constitutes responsible and discerning design, including technological mediation and unintended consequences. This naturally leads into the real "meat" of the book, which deals with design norms, or guiding principles that designers should seek to follow.

The authors extend the original list of norms in *Responsible Technology* to include categories of analytical, cultural, clarity, social, stewardship, harmony, justice, caring, and faithfulness. Common ethical frameworks are then presented that build on these design norms. This is excellent background knowledge that will greatly benefit engineering students, as well as practitioners. Although a Christian worldview pervades the entire book, it is explicitly addressed in "Modern Towers of Babel" (chapter 6) which explores the results of sin on engineering and resulting technologies. A helpful distinction between finiteness and fallenness illuminates this discussion.

The engineering of electric vehicles provides a fascinating example of how important historical context and past industry contribute to understanding in current designs. With this background, the design norms are then applied to envision the responsible development of a future electric vehicle. A chapter on technology and the future follows, with discussions of technological optimism, pessimism, and transhumanism. A biblical view of the future of technology concludes this section by framing it all in a Christian perspective. I imagine this section will be exciting for young engineers as they envision how God is calling them to use future technologies to influence the world for good and not for ill.

However, I found the second-to-last chapter (on technology for evangelism and missions) to be the most

interesting. Here we are reminded that technological work is a legitimate Christian calling, since "Our worship does not start and stop with the formal service in a church building ... worship can and should be an ever-present mindset and continuous act" (p. 175). And training as a technologist not only enables one to use technology in serving others physically, but it also provides access to the technological community where one can have an even more profound influence. The authors emphasize that "While Christians from a wide variety of vocational backgrounds can serve as missionaries in developing countries, only those with a highly technical education can serve as missionaries to this corporate mission field. Technical expertise opens doors" (p. 168). Readers are encouraged to develop their own unique and creative ways to use technology to love their neighbor. But this is about as close as the authors get to discussing what may be an important calling for many Christian engineers, that of the evangelist/apologist. I would like to have seen more discussion on how the expertise of engineers enables them to answer questions on science and faith apparent disagreements, questions asked by both skeptics and believers. Engineers are uniquely qualified to serve as mediators and peacemakers in the science and faith conversation, and unfortunately, perhaps due to size constraints, this aspect was not mentioned in the book.

Finally, I hope that readers make it to the last chapter since I found it particularly meaningful. It consists of a series of emails between a young engineer and his former engineering professor and mentor at a Christian university. Although the letters are fictional, they raise many questions that often arise within the first years of an engineering career. And the good professor dispenses his wisdom with keen insight and grace. Overall, I found this book to be a much-needed addition to the conversation on technology and Christian faith. And I think it should be widely considered as required reading in the first year of engineering programs at Christian universities. The questions for reflection and discussion at the end of each chapter are very thoughtful and provide a helpful resource in this regard.

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THE LIFE WE'RE LOOKING FOR: Reclaiming Relationship in a Technological World by Andy Crouch. New York: Convergent Books, 2022. 226 pages, including notes. Hardcover; \$25.00. ISBN: 9780593237342.

In *The Life We're Looking For*, subtitled *Reclaiming Relationship in a Technological World*, author Andy Crouch examines modern Western life given the ubiquity of and our dependence on technology. This is not a book about technology – you will not learn anything

new about the Internet, your cellphone, or AI. Instead, you will be asked to examine life in this modern age rife with loneliness, how we got here, and what we can do about it.

The book is divided into three sections: six chapters identifying the problems of the modern age, a one-chapter “intermission,” and five chapters identifying solutions to the problems. The problems of this world can be summarized by the subtitles of the first six chapters: “The Loneliness of a Personalized World,” “What We’ve Forgotten about Being a Person,” “How We Trade Personhood for Effortless Power,” “The Ancient Roots of Our Tech Obsession,” “How Impersonal Power Rules Our World,” and “Why the Next Tech Revolution Will Succeed—and Also Fail.”

One of Crouch’s major themes is that our modern conveniences promise us superpowers. This sounds like a good thing, but in reality it is not. Cars, trains, and planes allow us to move great distances quickly with little effort. Our cell phones give us the ability to translate languages, access vast amounts of information, and communicate almost instantaneously with people around the world. Even our household devices allow us to clean our house without any effort. How these devices work is, for most of us, indistinguishable from magic. Yet, having these abilities leaves us without the need for relationships, and without the need for long-term investment in a project or craft—such as learning a foreign language or learning to play an instrument. We lack the need (and ability?) to love with our full heart, soul, mind, and strength. We are allowed to skim across the surface of life instead of diving deep into it.

Another major theme of the book is Crouch’s definition of Mammon. In Matthew 6:24, Jesus says, “You cannot serve both God and Mammon.” Crouch expands Mammon from a concept to a being. Mammon is the demonic creature that rules the world. “... What [Mammon] wants, above all, is to separate power from relationship, abundance from dependence, and being from personhood” (p. 76). Mammon and money are closely related, for money makes possible “the ability to get things done, often by means of other persons, without the entanglements of friendship” (p. 72). Crouch then ties in technology: “What technology wants is really what Mammon wants: a world of context-free, responsibility-free, dependence-free power measured out in fungible, storable units of value” (p. 78).

In the “intermission” chapter, Crouch takes us to the table of Gaius, in Corinth, in the second century AD. Around the table are seated wealthy and powerful men, scribes, slaves, and women, and, notably, Paul the apostle. These people share a meal together as equals. They pray and sing together. This is radically counter-

cultural. Their actions acknowledge that all people are recognized as persons—image bearers of God.

To solve the problems highlighted in the first part of the book, the author proposes that we need to influence the world, not impact it. “Impact” implies applying a great force for a short period of time. “Influence” implies relationship, patience, and a slower pace. We should seek to use and create technology as an instrument that enhances personhood, does not promise short-term, instant gratification, and elevates and dignifies personhood.

Crouch identifies the promises made by technology: (1) “Now you’ll be able to ...,” and (2) “You’ll no longer have to ...” (p. 139). He encourages us to think carefully about what these promises are and how true they are. He then identifies the negative consequences of adopting a given technology: (3) “You’ll no longer be able to ...,” and (4) “Now you’ll have to ...” He then illustrates these promises and consequences with music, available ubiquitously now due to smartphones and the internet, and listened to on earbuds or headphones: (1) Now you’ll be able to listen to anything, anywhere. (2) You’ll no longer have to listen to others’ music in a shared space. (3) You’ll no longer be able to make time to practice an instrument so that you can make your own music. (4) Now you’ll have to keep upgrading your phone/device/provider so you can get all the best music (p. 140).

To address the epidemic of loneliness, Crouch proposes we should all live in “households”. Households are not just families, which may live thousands of miles apart. Households are groups of people sharing life together in community—living, eating, “doing life” together. A household means knowing where each person is and how each person is feeling that day. Crouch goes further, suggesting that we should stop seeking the “blessed” life, which he renames the “charmed” life, free from suffering and burden. Instead, we should include in our communities the “unuseful” person—the person who cannot contribute as much to the financial support of the community, due to age, (dis)ability, or health. To do so will change our hearts from desiring a charmed life to desiring to be a blessing. Moreover, it will radically acknowledge the full personhood of these others.

Andy Crouch gives compelling evidence for what he sees is wrong with life in Western society today. The book is full of wise observations—I have highlighted a sentence or two, if not a full paragraph, on most pages. I found his advice for positively influencing our world to be compelling and practical. His “treatment plan” for addressing loneliness was the most challenging for me. As an introvert, I like and need alone time. I’m not sure

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I could live under one roof with many other unrelated people. Still, the idea is noble, if perhaps impractical for many people.

I highly recommend this book. It is an easy read, and, more importantly, it will make you think.

Reviewed by Victor Norman, Associate Professor of Computer Science, Calvin University, Grand Rapids, MI 49546.

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GOD, TECHNOLOGY, AND THE CHRISTIAN LIFE by Tony Reinke. Wheaton, IL: Crossway, 2022. 320 pages. Paperback; \$21.99. ISBN: 9781433578274.

The ASA has long opposed the myth that science and Christian faith are incompatible. Nevertheless, ASA members differ on all sorts of issues. With little consensus on biblical eschatology, the greatest differences may be on issues related to the future. If so, then Tony Reinke's *God, Technology, and the Christian Life* is sure to be thought provoking, for its focus is the ongoing explosion in scientific knowledge and its applications.

Reinke, a journalist and author of several books, is associated with John Piper and his Desiring God ministry. He adheres to Piper's Reformed theology and trademark "Christian hedonism," which holds that our chief end is to "glorify God *by* enjoying him forever." So Reinke is not only a Christian hedonist, but also a tech hedonist. Today's gadgets delight him, and he looks forward to more wonders in the future. Even so, Reinke's hopes are well placed; he is "optimistic—not optimistic in man, but in the God who governs every square inch of Silicon Valley" (p. 30), a statement that summarizes the entire book.

A concluding section explains the book's origins (pp. 303–4). To write an introduction for *12 Ways Your Phone Is Changing You*, published in 2017, Reinke found it necessary to "catalog" his "meta convictions about human innovation." He went on to develop his convictions, revise and extend his catalog, do more research, and present his findings to several audiences, both in person and online. Finally, he assembled his lectures to produce this text. Unfortunately, it seems that this process left serious style problems. Individual chapters have a stand-alone quality, to the point they seem disconnected from the rest. Chapter-end summaries belabor the book's main points. Overall, the book's repetitive style obscures its connecting logic.

So what does the book argue?

In the Reformed tradition, Reinke seeks to develop a "biblical theology of technology" (p. 30). He begins with God's sovereignty in creation, and continues with God raising up image-bearers to explore nature and

invent tools. Finally, Reinke argues that God stands over those that "wield" technology, for both good or evil; even their worst acts (e.g., the crucifixion of Christ) are "hacked" by God to achieve our redemption, which was planned "before the foundation of the world." Technology is a feature of history, but it does not drive it. Instead, history always unfolds in accordance with the divine will.

The book is organized around nine people, nine primary Bible passages, and twelve common myths about technology (pp. 25–29). Some subjects are predictable (e.g., Babel), but others are not, giving some depth to Reinke's analysis. Six chapters broadly address key questions: "What Is Technology?," "What Is God's Relationship to Technology?," "Where Do Our Technologies Come From?," "What Can Technology Never Accomplish?," "When Do Our Technologies End?," and "How Should We Use Technology Today?" In Reinke's repetitive style, chapters conclude with numbered lists of "Takeaways" that summarize, and sometimes extend, main points.

So, does Reinke succeed? Is his "biblical theology of technology" sound? Depending on their theological presuppositions, readers will judge differently.

Reformed readers, like me, will appreciate Reinke's emphasis on God's sovereignty. In this view, nature testifies to God's existence and wonderful character, and so does technology, its wonders rooted in the divine attributes, and produced by image bearers that reflect them. Tech demonstrates God's creation of both nature and human innovators, and it plays important roles in the plan of redemption, all to the glory of God.

Readers from other traditions will differ to the extent they look to human agency to shape history and the future. Surely, mature Christians understand salvation is based in God's grace, but then what? Christians should live out their faith, but to what extent do their choices matter? Ultimately, are God's promises fulfilled by him alone, or are they realized somehow through human action, including work in science and technology? In Alfred North Whitehead's *process theology* or Philip Hefner's created *co-creator ideas*, humanity achieves, to some degree, what God has promised in the eschaton. Indeed, such thinking is common among self-identified *Christian transhumanists*.

In Reinke's Reformed view, such hopes distract from life's purpose, our chief end: the glorification of God. Instead, dreams of human self-sufficiency tend toward idolatry. God, jealous for his own glory, has placed that goal beyond our reach, and in our rebellion against God, its relentless pursuit only displays our depravity.

Yes, but even this view calls for boundaries. Where does our misguided quest for self-sufficiency end, and

where do warranted good works begin? Does not scripture authorize the development and use of technology to reduce suffering and to love our neighbors? To what extent can we delight in inventions without making them idols?

Unfortunately, Reinke does not answer these questions; quite the opposite. He criticizes Christians wrestling with such issues for using descriptive labels (e.g., scientism) because, in his view, they limit “thoughtful conversations on technology” (p. 29), yet he is unequivocal in opposing proclamation of a “Gospel of Technology” (pp. 163–73). But again, how should Christians find our limits under God’s rule? This question seems less important to Reinke than simply believing God will make the most of whatever happens.

Yes, the final chapter highlights the necessity of wisdom in *using* technology, wisdom that is available from God alone. But does not God give insight to all people? May we reasonably view science and technology as evidence of common grace, but deny that common grace could affect how society organizes and operates? Reinke praises the Amish for making deliberate decisions regarding technology, suggesting that all Christians would do well to do the same, but what criteria should we choose?

Ultimately, Reinke leaves all the big questions to God. Confident in him, Christians should just do the best they can, and then be content with the results. They are, after all, ordained by God. Surely this is true to some extent, but this leaves Reinke’s “biblical theology of technology” open to the classic criticism of Reformed thought: under its banner, Christians are not fully responsible for the results of their actions.

On this point, deep differences appear between Reinke and other Christian observers of technology development. For example, in *A Christian Field Guide to Technology for Engineers and Designers*, Ethan J. Brue, Derek C. Schuurman, and Steven H. VanderLeest argue that, compared with others, Christian innovators bear a *greater* responsibility than others. Informed by biblical ethics and wisdom, they must go beyond minimal success measures. Engineering leadership means faithful conformance to rules, and then some; supererogation is the requirement. But in the end, the message is the same: follow the rules—expressed in either policy or scripture—and the results will surely be good. Well, history reveals limits to that idea. And again, judgement is required. We must not only recognize that moral choices shape technology and its use, but also avoid an empty and uninformed tech moralism.

We might want clear lines separating good from evil in technology, but neither Reinke nor other Christian

authors can supply them. But to be fair, to what extent do people note and observe the clear lines God gave us in the Ten Commandments, the Sermon on the Mount, and many other passages? Until we leave this troubled world, clearly, we must walk by faith, not sight. So, as we walk through our technoscience-saturated world, Reinke and other Christians with biblical views of technology serve the church well. Surely, many ASA members, from diverse theological traditions, will find *God, Technology, and the Christian Life* interesting—either stimulating or frustrating—as well as contributing to further explorations of technology in the light of scripture.

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THE END OF THE LAW? Law, Theology, and Neuroscience by David W. Opderbeck. Eugene, OR: Cascade, 2021. 260 pages. Paperback; \$31.00. ISBN: 9781498223898.

“It’s not you but your brain.” As this powerful meme has begun to characterise our generation, we encounter children under neurological treatment for their behavioral/mental deficits and seniors losing their self-identity due to neurological degeneration. It is indeed evident that our mental experiences are bound to our brain states—yet are we really nothing else than our brain? Many intellectuals of our day argue so—our psyche is an epiphenomenon of our brain state, and so we have no free will.

Recent advances in neuroscience, especially with non-invasive neuroimaging techniques enabling scientists to “read out” one’s decision ahead of a person being consciously aware of their own decision, have underpinned a new movement called *neurolaw*. According to *neurolawyers*, humans are no longer legally or morally accountable for their behaviors as science leaves no room for the existence of free will; consequently, law should be re-oriented from retribution to treatment of criminals. Indeed, *neurolaw* seeks “to explain and reform the legal system from the ground up based on neuroscience” (p. 2). Despite, or because of, its radicality, the *neurolaw* movement can be an attractive alternate to the legal tradition of Western civilization, which is rapidly losing its Greco-Roman/Christian foundations in law and ethics. It is also in line with the trend that our contemporaries increasingly seek justice through facts/science and empathy instead of transcendent values and rationality.

Although *neurolawyers* optimistically hope that this shift will lead our world from conflicts in subjective

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values/beliefs to facts of science, and from moral retribution to humane treatment of criminals, in this book Seton Hall University Law School Professor David Opderbeck carefully considers their optimism legally, philosophically, and theologically—and concludes that, with no place for transcendence, their optimism is misplaced. Neurolaw's reductionism loses not only the place of personal responsibility in law and jurisprudence, but loses a rich and complex understanding of human nature and relationality. Opderbeck argues that theology can defend the transcendence of law and human morality, without losing its integrity to science, by understanding the laws of nature as empowering nature to fulfill its *telos*—its divine purpose. This move is key to a unified epistemological view on science and law, such that human-made laws empower humans with freedom and personhood—physically, legally, and morally. Consequently, the author reframes positive law (i.e., human-made law) as calling humans to the divine law of love.

In the first three chapters, Opderbeck illustrates how Western law made the historical shift from its foundational transcendent values, through legal positivism, to neurolaw. Contrary to the contemporary jurisprudential trend, the four rudiments of Western law, i.e., Ancient Greek, Roman, Hebrew, and Christian jurisprudence, commonly state that positive law has transcendent sources and is preceded by the ideal of law or universal moral principles (chap. 1). In contrast, today's Anglo-American legal scholarship, dominated by legal positivism and instrumentalism, removes transcendent grounds for law, replacing it with a hope that economics and science can guide the law by providing a measurement of "good" and predictions of its outcome (chap. 3). The current reductionist trends in neuroscience paint this picture with a greater hope by revealing detailed biological determinants of human behavior.

In chapters 4 and 5, Opderbeck provides a methodological basis for his analysis in the later chapters. He favors critical realism and *fides et ratio* approaches as they permit separate and yet complementary research in the two domains. He then demonstrates how together these can help to uncover the meaning of the law from the facts of paleoanthropology and sociobiology. Whereas sociobiologists such as David S. Wilson suggest that the contingent evolution of social orders in animals indicates that law is a construct with no transcendence, Opderbeck highlights the emergence of unique human cognitive abilities such as abstraction, language, and writing, which he argues enable the law to transcend the social orders observed in other species.

After showing that the facts of paleoanthropology and sociobiology can be interpreted differently from a materialist view, Opderbeck continues his philo-

sophical criticism of the reductionism/materialism on which neurolaw is based (chap. 6). He points out that the fields of neuroscience and the philosophy of mind retain positivist assumptions. The author then identifies three problems in materialistic/reductionistic/positivist views of the law. First, reductionism cannot provide a coherent epistemological ground to make a truth statement since reason and consciousness are only illusory. Second, neurolaw proposes social engineering toward achieving behavioral normalcy in the population, but this leads to obscurity in value judgement—and, more seriously, to totalitarianism. Finally, materialism easily leads to nihilism.

Opderbeck's theological vision (and counterproposal to neurolaw) is uncovered in the last three chapters of the book. In chapter 7, he discusses the ontology of the human mind and free will. For this, he rejects the nonreductive physicalism of theologians such as Nancey Murphy and Robert van Gulick. He then finds more promising a neo-Aristotelian, teleological understanding of natural law as "powers and capacities" that emerge within nature (p. 173). These, rather than deterministic neurobiological rules, can be key to theological synthesis of science and law. To him, this view not only provides a plausible causal or explanatory framework but requires complementary room for transcendence: God's trinitarian, perichoretic transcendental love provides the *telos* for creation, and so the purpose of positive (human-made) law is to fulfill this transcendental *telos* through the "powers and capacities" of natural law

Opderbeck then assigns his last chapter to an applied problem, namely the problem of violence in the enforcement of law. Indeed, this issue appears to be one of the most important motivations for neurolawyers: neuroscience seeks to transform the means of law enforcement from retributive violence to more humane, neurological treatment. Nonetheless, through discussions of Pascal, Derrida, and Agamben, the author demonstrates that the law cannot bring justice without violent enforcement. Therefore, by forgoing divine transcendence it is impossible for neurolaw to overcome the problem of the violence of law. Opderbeck thereby puts forward the necessity of Christian teleology for an ultimate hope. Law is not a matter of deterministic rules but of love and life, and law is not of enforcement but empowering. What makes humans is not our capacity to make free choices but to be free to love and live; this is our *telos*.

The End of the Law? is a scholarly interdisciplinary book, which crosses over the philosophies of law, mind, science, and theology in order to challenge or re-orient the current dominance of legal/scientific positivism, reductionism, and physicalism among intellectual groups.

This dense book suits those who are already exposed to philosophical analysis on some of these topics (or, for readers unfamiliar with some of this terrain, but willing to do some background reading). Despite the degree to which it engages questions in philosophy, the book ultimately seeks to re-orient the law around Trinitarian theology. As this will limit its plausibility in public legal spheres, I do wonder if the philosophical argument could have been further developed for those who do not hold to Trinitarian theology (or any theology).

As a neuroscientist I would add one further note. There is little interest within neuroscience today in the problem of free will. In fact, students are discouraged from studying the question, as it is considered an unsuitable subject for scientific investigation. Most of us stay “scientifically agnostic,” although individual scientists have their own philosophies or perspectives. Given that neuroscience is still restricted to a deterministic regime, free will can only be falsifiable but not verifiable, because it is widely considered beyond the laws of nature. It is, therefore, not surprising that one finds only evidence against free will, which comes from the epistemological constraints of the discipline of neuroscience today. I strongly suggest that proponents of neurolaw scrutinize at what point neuroscience reaches its methodological limits before assuming a particular ontological interpretation of experimental results to be “neuroscientific” or even unfalsifiable. The neurolaw program appears to be built without adequate recognition of these interpretive limits within neuroscience, no doubt due to its positivist assumptions. Overall, in Opderbeck’s book readers will encounter rich and complex discussions across different fields integrating law, science, and theology. Although Opderbeck writes from a Roman Catholic perspective, this book does not feel like an in-house discussion—his foundational arguments are rooted in classical Trinitarian metaphysics and Protestants willing to work through Opderbeck’s conceptually dense discussions will find much of value in this work.

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THE INTEGRATION OF PSYCHOLOGY & CHRISTIANITY: A Domain-Based Approach by William L. Hathaway and Mark A. Yarhouse. Downers Grove, IL: InterVarsity Press Academic, 2021. 199 pages. ISBN: 9780830841837.

Reading *The Integration of Psychology and Christianity* brought to mind the lively discussions about integration that I had with my fellow undergraduates at Gordon College some twenty years ago. We were hampered in reaching any agreement by the fact that our assigned

text, *Psychology and Christianity: Four Views*,¹ presented four authors who each defined integration in their own idiosyncratic way, which then resulted in us students talking past each other.

If only we’d had this book! Hathaway and Yarhouse resolve these confusions by offering a “domain-based approach.” Rather than advocating for a particular integration approach, as has been common in integration scholarship, Hathaway and Yarhouse outline the multiplicity of ways in which the Christian psychologist might choose to integrate faith and psychology. This approach is one I found immediately useful, given my position as chair of psychology at a small Christian liberal arts college where I frequently mentor junior colleagues with less experience in Christian higher education as they learn to integrate faith into their teaching. Hathaway and Yarhouse’s categories include the following: worldview integration, theoretical integration, applied integration, role integration, and personal integration. These categories not only offer a shared vocabulary for integration conversations, but they can serve as an inventory of one’s comfort level in different types of integration (one may be quite comfortable doing personal integration while finding theoretical integration challenging, for example). Overall, the book is excellent as a catalyst for personal reflection and growth for the Christian psychologist, whether they be researcher, professor, or clinician.

A particular strength of the book is its emphasis on clinical and applied psychological work. The most original contributions are the chapters on applied integration and role integration. The former adapts a secular model for a Christian population or develops Christian interventions from Christian thought and practice while the latter describes living out the role expectations of a particular vocation (e.g., counselor) in a way that is consistent with Christian identity. These chapters have many examples from Yarhouse and Hathaway’s own experience in navigating these areas. Their clear articulation of the professional duties of the Christian who joins the counseling guild, for example, was extremely useful. I found myself grateful to have their take on role integration to offer to my aspiring therapist students, who often find themselves torn between personal conviction and professional obligations. Yarhouse and Hathaway offer a well-argued Christian perspective that emphasizes the priority of those professional obligations.

A few criticisms. I mentioned that this book reminded me of my integration discussions in the early 2000s. While the integration resources are helpfully updated and the whole book is very well resourced, I found that the core approach to integration had remained largely unchanged. That is to say, this is very much a book

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written by two fairly conservative white American evangelical men. While the authors are moderates in evangelical terms, Yarhouse's scholarship (in sexual and gender identity) brings him into American culture-wars territory. It is not surprising, then, that they would see the challenges of Christian psychologists to be primarily in dealing with an often-antagonistic secular psychology. To be clear, far from advocating a hostile approach to secular psychology in return, they model a subtle Christian attempt to influence psychology policies to be more compatible with Christian values—and indeed their personal examples of successfully doing this are laudably sensible.

However, the revelations of evangelical complicity during the Trump years and the current rise of American Christian nationalism have left me questioning whether the largely apolitical nature of my Christian training in psychology was sufficiently transformational. I find myself yearning for a post-Trump integration analysis, an approach that grapples with the harms of evangelicals' quest for power. Or to put it another way, I question the idea, as sometimes implied by the authors, that the primary challenge Christians working in psychology face is the problem of too little cultural power.

The book's most obvious limitations in this vein are in the worldview integration chapter. Here we find the conservative nonprofit Heterodox Academy and its idea of "viewpoint diversity" uncritically embraced. The suggestion is that the conservative/Christian worldview should be considered a type of diversity akin to racial or gender diversity, given its minority status in liberal-dominated psychology. Given the very real challenges presented by racism and sexism, this framing seems at best tone deaf and at worst an encouragement to evangelicals to approach psychology with a persecution mindset. Also missing from this picture is the fact that the discipline often aligns itself with powerful interests and is therefore much less concerned with political beliefs per se than with power (to give just one example, the 2015 Hoffman Report documented how, during the Bush era, the American Psychological Association colluded with the US Department of Defence to change the APA ethics code to allow psychologists to participate in "enhanced interrogations" of terror suspects at Guantanamo Bay). Perhaps Christian integration efforts might involve an *Imago Dei*-informed attempt to challenge this status quo. My own graduate training in critical/feminist psychology prompted me to reflect on the harms that even well-meaning psychologists might perpetrate if they allow themselves to be used to enable the capitalist control of people. From Amazon warehouses to counseling practices, our neoliberal world offers many ways in which unwary Christian psychologists can contribute to the dehumanization of people. Counselors teach their

clients to understand their mental struggles as caused by individual failings while ignoring the influence of systemic factors; this should be at least as much an ethical concern for Christian psychologists as the more typical hot-button trio of abortion, LGBTQ+, and euthanasia (Hathaway and Yarhouse tend to highlight these three in their examples).

Tellingly, in this book, the topic of social justice is relegated to the personal integration chapter as something that psychologists might choose to embrace as part of their individualistic spiritual development. Missing is the idea that justice or advocacy for the powerless might inform psychological theory from the get-go or even form a core part of the Christian worldview. In fact, the term "worldview" itself can be read as a sign of the static, inward-looking nature of the framing chosen here. Much as James Sire's books on the topic are classics, the fact remains that the term worldview is a distinctively evangelical Christian idea, out of touch with secular psychology. Further, the take on post-modernism that the worldview approach encourages verges on caricature. Although the authors of this book acknowledge some of these weaknesses, their choices in this chapter betray a lack of conversation with post-modern theorists in psychology, whose focus is not generally moral relativism but a critique of dominant power structures. Citing such scholars, many of whom make relevant critiques of psychology's philosophical blind spots, would have strengthened the worldview chapter.

One particularly clarifying move this book makes is to put integration typologies on a continuum with three major categories: assimilation, productive tension, and expanded horizons. The ideal integration work, they argue (riffing on Gadamer), results in an expanded horizon, where the insights of both sides are modified by fusion with the other. This idea is one that they might have taken further. Hathaway and Yarhouse are careful to articulate the privileged nature of scripture in such an encounter of horizons, but this seems to underestimate the cultural knowledge and assumptions that we import into scriptural interpretation. Surely the encounter of horizons is not pure divine revelation meeting pure psychological knowledge, but rather, the encounter is mediated by biased and finite human beings. The authors define worldview integration as "an attempt to reposition psychology within a cognitive frame that is coherently embedded within Christian thought and premised on Christian assumptions." I wish they had been more reflective about whose Christian thought and Christian assumptions they were presenting as normative. Given that this book is published by IVP Academic, this will likely not be a problem for their target audience, who probably share their assumptions. But I would expect a book that champions the expanded

horizon as the telos of integration to be more influenced by a diversity of Christian voices and a diversity of psychological approaches.

Perhaps this is more a complaint about psychology integration work as a whole, rather than this book in particular. Overall, I am very appreciative of this contribution, and simply hope that the foundation laid here can be used by readers to build integration efforts that are more self-reflective and outward-looking integration efforts than the book itself models. Hathaway and Yarhouse's main contributions in this book are (1) a comprehensive and sophisticated review of past integration work, (2) the helpful clarifying domain categories, and (3) innovations in the areas of applied integration and role integration, areas that previous integration work has neglected. For those hoping to get up to speed on integration work in psychology or hoping to grow in the sophistication of their integration efforts, this is a valuable resource and very much worth reading.

Note

¹Eric L. Johnson and Stanton L. Jones, eds., *Psychology and Christianity: Four Views* (Downers Grove, IL: InterVarsity Press, 2000).

Reviewed by Elissa Rodkey, Associate Professor of Psychology, Cran-dall University, Moncton, NB E1C 9L7. ✨

Letters

Book Author Responds to Reviewers

Although I am gratified that *PSCF* should feature a review essay on my book *In Quest of the Historical Adam* (Sara M. Koenig and Cara M. Wall-Scheffler, "Discussions about Dispersals: Questions Rising from the Search for Historical Adam," *PSCF* 74, no. 4 [2022]: 242–45), I was disappointed to find that the reviewers misrepresented the basic positions and supporting arguments set forth in the book. It would be impossible to correct here every misunderstanding, so let me instead characterize positively and more accurately my proposed view. In the book I address two fundamental questions:

1. What are our biblical commitments concerning the historicity of Adam and Eve?
2. Are our biblical commitments compatible with the evidence of contemporary science concerning human origins?

In response to the first question, I present two arguments to show that we are biblically committed to a historical Adam and Eve: (1) The genealogies that order the primeval narratives of Genesis 1–11 and transform

them into a primeval history meld seamlessly into the patriarchal narratives concerning Abraham and his descendants, who are indisputably regarded by the Pentateuchal author as historical persons, implying that their ancestors are likewise regarded as historical; (2) Although many of the New Testament references to Adam and Eve may be interpreted as references to merely literary figures of Genesis 2–3, Paul's treatment of Adam in Romans 5 implies that Adam was a historical figure, since no purely fictional character can have causal effects outside the world of the fiction, whereas Paul ascribes real world effects to Adam's fall.

Unfortunately, the reviewers conflate these two arguments on behalf of our commitment to a historical Adam with my reasons for thinking that the question of the historical Adam is theologically important (pp. 6–9, *In Quest of the Historical Adam*), leading to confusion on their part and, I fear, on the part of their readers. Their statement that "because we believe that God's love 'covers' everyone, we don't need a historical Eve (or Adam) to trust in the truthfulness of scripture" (p. 242) is a non sequitur and irrelevant to my arguments.

I was also surprised to learn that I "default to an enlightenment understanding of truth" (p. 243). As a professional philosopher, I have some knowledge of theories of truth and of the history of philosophy, and I must confess that I have no idea what is meant by an enlightenment understanding of truth! That I do not "equate truth with historical fact" should be obvious in view of my strong emphasis upon the truth and non-literality of myth.

Making Paul's theology "dependent on the historicity of a literal Adam" is said to "tie Christian belief to unnecessarily improbable and even problematic assumptions" (p. 243). That allegation not only unjustifiably assumes that Paul's theology is not in fact tied to such problematic assumptions, but also presumes that such assumptions are problematic—which is addressed in my answer to the second question.

In response to question two, I argue on the basis of a wide range of "archaeological signatures" of modern cognitive behavior among not only early *Homo sapiens* but also Neanderthals, that a human founding pair would have had to be located prior to the divergence of Neanderthals and *Homo sapiens*. This suggests that Adam and Eve belonged to the most recent common ancestor of these two species, *Homo heidelbergensis*. It is striking that the reviewers omit any mention of these fascinating and remarkable archaeological signatures that support my contention. This omission is made all the worse by their disparaging remarks concerning the cognitive capacity of Neanderthals.