

# PERSPECTIVES on Science and Christian Faith

JOURNAL OF THE AMERICAN SCIENTIFIC AFFILIATION

***In This Theme Issue on  
Understanding and Helping Those with Alzheimer's ...***

Loving God with All Your Mind, and Alzheimer's

Quality of Life of Members of a Religious Community  
Living in Long-Term Care

Religious Coping While Providing Care for Someone  
with Alzheimer's Disease

***Bonus***

Recent Themes for Christians in Science Journals:  
A Centering Resonance Analysis

*"The fear of the Lord  
is the beginning of Wisdom."*

Psalm 111:10

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James C. Peterson

# What Has Been Accomplished, and How Much More Needs to Be Done

The initial theme for this issue is neurology, experience, and care for those dealing with Alzheimer's. As our population ages and with no cure yet in sight, if we are not already caring for a relative with this condition, the odds are that we will, or will experience it directly ourselves. That is a daunting challenge, but not one that we face alone. Bryan Auday overviews the impact and current understanding of the condition. He also raises key questions for the Christian tradition as to how to live with such a challenge—whether as a patient or among those caring for them. Suzanne Cahill and Ana Diaz-Ponce tap the social sciences for insights into the experience of Alzheimer's in a worship-centered retirement community. Then Elise Eifert describes the difference that the Christian faith and others can make for caregivers.

As a bonus after the theme articles, three of our Brazilian colleagues—Jonathan Freitas, Matheus Salgado, and Guilherme de Carvalho—bring computational tools to analyze the article content of two journals addressing science and Christian faith. Specifically, they studied this journal, *Perspectives on Science and Christian Faith (PSCF)*, and the journal of the United Kingdom's Christians in Science titled *Science and Christian Belief*. The study categorizes the focus of articles in sometimes surprising ways. For example, two of the four articles of the *PSCF* animal theme issue did not fall under the category "Animal." By their analysis, one article in that theme issue was more focused on "Humanity" and another on "Broader Discussions." As an interdisciplinary journal, even the conversations of a theme issue are enriched and applied in a wider context.

It is noteworthy as well that, by definition, any sample has limits. The article surveys the five years from 2011–2015. The first issue published after the study period had four essays on the history of science and faith interactions. If that issue had fallen within the five years of the study, the proportion of historical articles would have been markedly different. Some

areas of investigation seem perennial, such as how to read the opening chapters of Genesis as we learn more from cosmology, genetics, anthropology, and hermeneutics. Yet, even within continuing topics, the study sees marked movement. Many ideas that were controversial when they first appeared in the journal have become routine as the discussion moves on to further questions.

What is most evident in the Freitas, Salgado, and de Carvalho article is that there is a striking breadth of investigation in *PSCF* from multiple disciplines. In the last issue of *PSCF*, the articles were written by a biologist, psychologist, historian, and physicist. Here, in this issue, we hear from the expertise of a neurologist, social scientists, and statisticians. Bringing into dialogue the best of the sciences with arguably the world's most global movement—the Christian tradition—raises countless points for interaction, challenge, and insight. With that breadth, this journal is unusually well positioned to tackle interdisciplinary challenges such as it does with Alzheimer's in this issue. Granted, it is a challenge for authors in *PSCF* to be true to the methods and insights of their own disciplines while, at the same time, speaking in a way accessible to readers expert in yet other disciplines—but it is well worth the effort.

Findings in one field can confirm or launch work in another. We have seen in these pages informative exchanges and expositions on creation care, teaching math, the nature of God, multiverses, the cognitive science of religion, fracking, science fiction as a tool of technology evaluation, phase transition from chaos to order, medicine and miracles, the possibility and role of chance in God's providence, open source software, bioethics, and more. In their article, Freitas, Salgado, and de Carvalho encourage us to reflect on what has been accomplished, and how much more needs to be done. ❖

**James C. Peterson**, *editor-in-chief*



**Bryan C. Auday**

## Article

# Loving God with All Your Mind, and Alzheimer's

*Bryan C. Auday*

*Alzheimer's, the most commonly diagnosed form of dementia, appears to be the result of our brains living beyond the period for which they were designed. The National Institute on Aging ranks dementia as the third leading cause of death for older people, behind heart disease and cancer. As the percentage of the world population over the age of 65 years continues to increase, a case can be made for focusing our attention on this devastating illness. The prospect of living with an incurable disease that in its late stages robs a person of traits that are inextricably linked to personhood is daunting. This article explores areas of Christian scholarship that will inform our understanding of this tragic disease.*

One of my all-time favorite books written on the topic of human memory is Daniel Schacter's *Searching for Memory: The Brain, the Mind, and the Past*.<sup>1</sup> In his chapter discussing amnesia and the brain, Schacter talks about his 55-year-old former patient, "Frederick," who had come to a memory disorders clinic at the University of Toronto. The clinic was set up to evaluate, investigate, and rehabilitate memory problems that came about as a result of traumatic brain injury or disease. This was the early 1980s and Frederick was referred to the clinic because he was suspected of being in the early stages of Alzheimer's disease (AD).

While there, Schacter learned Frederick had a passion for golf, so they soon made plans to hit the links together. Schacter turned the experience into a study by bringing along a tape recorder and asking Frederick a lot of questions about the jargon, etiquette, and rules of golf. He was amazed by Frederick's ability to access semantic memory (information concerning knowledge of the world, including

golf facts) as well as procedural memories (those involved in motor movements such as walking or playing a sport). However, on the tenth hole of the golf course, something bizarre happened. Frederick hit off the tee first and executed a wonderful shot over a creek, the shot landing on the fairway. Schacter then took his turn, struck the ball, and began to walk toward where it had landed. When he looked over his shoulder, he noticed that Frederick was teeing up another ball on the same hole, apparently having no memory of the previous shot he had struck just moments earlier. It was as though his memory of playing the hole had been wiped clean.

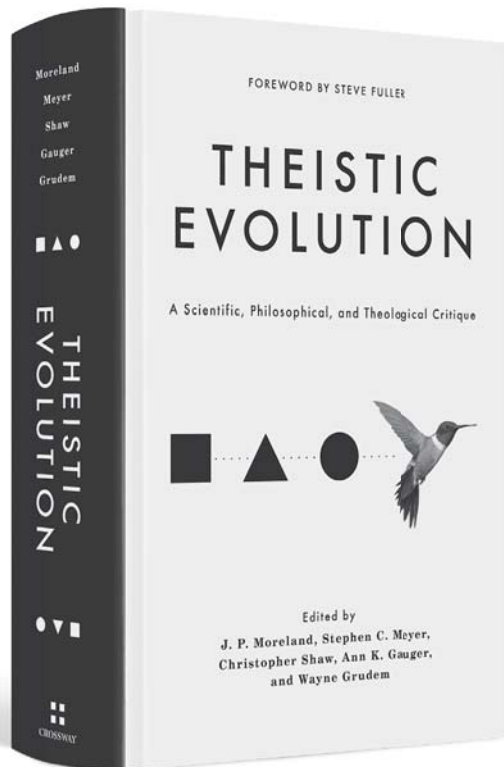
At the end of the round of 18 holes, Schacter was astounded to learn that Frederick had no specific memory for any stroke he had played during the entire day. He was not retaining any recent, episodic memories. This left Frederick with a memory disorder that robbed him of the capacity to form new personal, individual experiences. The next week Schacter took Frederick out for golf for a repeat performance. Frederick began to talk about his golf game with Schacter as though the two had never played together. Schacter did not have the heart to tell him about the previous week.

**Bryan C. Auday, PhD**, is a professor in the Department of Psychology at Gordon College, Wenham, MA, and is also the founding director of the neuroscience program there. He completed, as co-medical editor, the Salem Health Magill's Medical Guide, vols. 1-5, 7th ed. (Hackensack, NJ: Grey House Publishing, 2014).

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Suzanne M. Cahill

## Article

# Quality of Life of Members of a Religious Community Living in Long-Term Care

Suzanne M. Cahill and Ana M. Diaz-Ponce



Ana M. Diaz-Ponce

*This qualitative study investigated perceptions of quality of life among a small sample of elderly nuns (N=15) and one priest identified as having a cognitive impairment and who were residents in a religious nursing home. By using in-depth semi-structured interviews, it compared their self-reports of quality of life with those provided by the nurse manager. Following data analysis, four key categories linked to the overarching theme of continuity emerged. These were (1) religion, (2) belonging, (3) autonomy, and (4) altruism. Findings showed that most nuns claimed they enjoyed a good quality of life; however, their perceptions of a "good life" were often at variance with those of the nurse manager, whose appraisal tended to be based on residents' physical functioning, cognitive status, and age, and not on their religion, belonging, and altruism. This study generates new findings on the quality of life of members of religious orders with a cognitive impairment.*

**B**y international standards, Ireland has a relatively young population. There are approximately 625,500 people aged 65 and over in Ireland, yet this figure is set to more than double over the next thirty years.<sup>1</sup> Like other Western countries, only a small proportion (circa 4.6%) of older Irish people are residents in long-term care.<sup>2</sup> While the topic of their quality of life (QoL) has received some recent attention,<sup>3</sup> less is known about the QoL of aging minorities, including nuns and priests who, because of chronic health conditions and disability, require long-term care. This study explores the

QoL of members of religious orders living in one particular religious-based nursing home operating exclusively for religious orders. Research into the needs of aging religious people is important because this is an international and multifaith issue.

## Literature Review

Using key terms such as religion, QoL, nursing home, cognitive impairment, and dementia, an extensive literature search was undertaken. Search engines used included Sage, PubMed, Scopus, CINAHL, PsycINFO, and ProQuest. No articles of direct relevance to the topic were found. Accordingly, while a substantive body of literature exists on the topics of QoL and dementia<sup>4</sup> and QoL and long-term care,<sup>5</sup> published works about the QoL of members of religious orders with dementia or cognitive impairment living in long-term care facilities are lacking. The much-cited Nun study,<sup>6</sup> which followed 678 Catholic nuns over a number of years, is one exception. While the latter showed how spirituality and faith appeared to influence these nuns' life

**Suzanne M. Cahill** is an adjunct professor in the School of Social Work and Social Policy at Trinity College Dublin. Between 1999 and 2017 she has been employed as Director of the Dementia Services Information and Development Centre at St. James's Hospital Dublin, Ireland. Her most recent book is entitled *Dementia and Human Rights*. It will be published in the spring of 2018 by Policy Press.

**Ana M. Diaz-Ponce** (MSc, PhD) has worked as a social worker in different care settings specializing in the care of people with dementia. At the time the study presented in this paper was carried out, she was working as a researcher in the School of Social Work and Social Policy at Trinity College Dublin (TCD). Ana is currently working for Alzheimer Europe as Project Officer and is a visiting researcher at TCD.

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Elise K. Eifert

# Religious Coping While Providing Care for Someone with Alzheimer's Disease

Elise K. Eifert

*Caring for a family member with Alzheimer's disease and related dementia has been recognized as a source of stress that can negatively impact the health and well-being of the caregiver. Coping strategies for the family caregiver may help him or her diminish this impact. Growing attention has been focused on the relationships between religious coping, stress, and health outcomes among family caregivers. For this article, the literature was examined in an attempt to understand religion as a source of support and means of coping among individuals providing care to a family member with Alzheimer's disease and related dementia.*

I have been surrounded by Alzheimer's disease (AD) most of my life. My great-grandfather was diagnosed with AD when I was in grade school, followed by my maternal grandmother who also had AD, and then by my paternal grandmother who had vascular dementia. Not to mention all the residents—most had some form of dementia—who lived in the nursing home that my father was the administrator of and where I visited frequently throughout my adolescence (mostly to play bingo). I am not sure any disease related to aging causes more fear than Alzheimer's disease and related disorders (ADRD). The slow descent into darkness that accompanies many progressive forms of dementia, such as AD, is devastating. For the person with ADRD, we can only hope that they are unaware, but what about the family members left behind?

For every person with ADRD, there is a caregiver, most likely a family member such as a spouse or adult child. In my family's case, there were multiple family caregivers stoically providing direct and indirect assistance. As a young person, I was mostly oblivious to the hardships that probably accompanied this role. As an adult, I recognize the toll this had to

have taken on individual family members. Watching a person you know and love disappear little by little until he or she is a shell of their former self had to be heartbreaking. I believe that these childhood experiences with ADRD shaped my career choices. My first job after college was as an ADRD educator for a local, not-for-profit in Florida. Later, I earned a PhD in public health education with a post-baccalaureate certificate in gerontology. I have been studying family caregiving ever since.

In my career, I hear a lot of personal caregiving stories. Although each experience is unique, there are similar threads. One such thread is the stressful, life-consuming nature of caregiving that often impacts the health of the person providing the care. Caregivers experience numerous stressful events that occur concurrently and continue over time. The impact of this stress is known as "caregiver burden." There is no single agreed-upon definition of caregiver burden;<sup>1</sup> however, caregiver burden can

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**Elise Eifert** earned a PhD in public health education from the University of North Carolina (UNCG) at Greensboro, as well as a post-baccalaureate certificate in gerontology. She is currently the program coordinator for the online Master's degree in gerontology at UNCG.

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# Article

*Religious Coping While Providing Care for Someone with Alzheimer's Disease*

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# Recent Themes for Christians in Science Journals: A Centering Resonance Analysis

Jonathan Simões Freitas, Matheus Nogueira Salgado, and Guilherme Vilela Ribeiro de Carvalho

*This paper identifies the main themes discussed from 2011 to 2015 by the articles published in Perspectives on Science and Christian Faith (PSCF) and Science and Christian Belief (S&CB). Centering Resonance Analysis (CRA) was used to analyze the content of the 113 abstracts. The resulting word networks were agglomerated in twenty groups of articles by Hierarchical Clustering Analysis (HCA). Each discursive cluster was then characterized and its main theme labeled in terms of its most important words. The thematic emphasis of each journal and their combined publishing trends over time were identified. Suggestions of other possible contributions from text analytics are pointed out, as an encouragement to further technical work in this field. Thus, this paper contributes both as an introductory resource for the recent academic discourse on science and Christian faith, and as a starting point to an informed discussion about the future of this evolving research area.*

In most fields of study, periodic bibliometric analysis is conducted to update the state of knowledge in the area and identify its trends. This kind of analytical study is helpful to give an overview of research directions in a way that would be otherwise difficult to do—that is, without computer assistance. Therefore, quantitative literature analysis adds value to more in-depth qualitative bibliographical reviews and helps researchers position themselves in the field and identify knowledge gaps.<sup>1</sup>

Nevertheless, in the “science and faith” (sci/faith) field of study, there seem to be no computer-assisted analytical reviews. Indeed, there is a lack of literature review articles in general in this area. Most of the state-of-the-field overviews are published in textbooks and are usually quickly outdated because of the constant publication of new relevant articles in specialized journals. This is especially true for the

dialogue between science and Christian faith. We could not find a single sci/faith literature overview article in any of the two main journals of Christians in science associations: *Perspectives on Science and Christian Faith (PSCF)* of the American Scientific Affiliation (ASA) and *Science and Christian Belief (S&CB)* of Christians in Science UK (CiS).



Jonathan Simões Freitas



Matheus Nogueira Salgado



Guilherme Vilela Ribeiro de Carvalho

**Jonathan Freitas** is the research coordinator of the Brazilian Association of Christians in Science (ABC<sup>2</sup>). He is a member of the Kuyper Association for Transdisciplinary Studies (AKET) and L'Abri. He holds a BSc in engineering and a PhD in management. His research interests are knowledge visualization and philosophy of technology.

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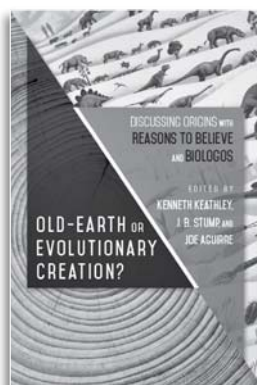
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## ENVIRONMENT

**ON EARTH AS IT IS IN HEAVEN: Cultivating a Contemporary Theology of Creation** by David Vincent Meconi, ed. Grand Rapids, MI: Eerdmans, 2016. 332 pages, index. Paperback; \$35.00. ISBN: 9780802873507.

This book is a part of the Catholic Theological Formation Series sponsored by the Saint Paul Seminary School of Divinity, the graduate school at the University of St. Thomas in Saint Paul, MN. As stated in the preface, the focus of this series is to prepare priests, teachers, and leaders within the Roman Catholic tradition. While the series is designed to be academic in its tenor, it also aims to promote a form of discourse that is “not only professional in its conduct but spiritual in its outcomes.” Theological formation is to be more than an academic exercise as it is also about the development of a spiritual capacity to discern what is true and good. This series, then, aims to develop the habits of the mind required of a sound intellect and the spiritual aptitude for the truth of God’s living Word and God’s church.

In the summer of 2014, a group of scholars gathered at the Saint Paul Seminary in Minnesota to examine what the Christian tradition might have to say about caring for creation. The fifteen essays that are included in *On Earth as It Is in Heaven* are the product of these discussions. Collectively, they defend environmental responsibility and provide the basis for the development of an ecological spirituality. Although the essays preceded the 2015 release of *Laudato Si’*, Pope Francis’s encyclical on the environment, they closely parallel the major concerns, themes, and figures put forth by the Holy Father. They agree that any proper theology of creation must resist sacralizing nonhuman creatures. At the same time, they refuse to reduce creatures to merely natural objects to be exploited only for human gain.

Rather than reviewing all of the fifteen essays that are included in the book, I will briefly summarize four of them as representative examples. The fourth essay in the collection was written by Marie George, a professor at St. John’s University in New York who has received several awards from the John Templeton Foundation for her work in science and religion. Her essay, entitled “Kingship and Kinship: Opposing or Complementary Ways of Envisaging Our Relationship to Material Creation?,” argues that both kingship and kinship, when rightly understood, significantly inform our understanding of the role of humans in relation to creation. Our kingly responsibilities stem from the special status we have as the

only earthly creatures created in the image of God. However, kingship does not imply tyranny, but ensures a just use of creation which protects biodiversity and forbids the hoarding of resources. Although kingship implies human superiority in a certain sense, the kingship concept, found in Benedictine and Franciscan spirituality, fosters an attitude of respect and appeals to the goodness of God’s creatures as a reason to treat them gently.

The fifth essay, written by Matthew Levering, professor at Mundelein Seminary in Chicago, is entitled “Be Fruitful and Multiply, and Fill the Earth: Was and Is This a Good Idea?” In the first section of this essay, Levering examines God’s command to Adam in Genesis 1:28, which is repeated to Noah in Genesis 9:1. The second section explores a very different perspective on human multiplication, found in the Christian environmentalist Bill McKibben’s “Maybe One: A Case for Smaller Families.” McKibben argues that Americans need to limit family size to one child or face imminent, catastrophic ecological disaster. Having set forth this tension, Levering seeks in his third section to develop a theological framework for approaching the command to “be fruitful and multiply” in a manner open to concerns about population growth, while mindful of the divine pattern identified in Genesis and the church’s affirmation of life. Several interesting conclusions are presented in the fourth and final section of this essay.

The tenth essay was written by Christopher Franks, who teaches in the Department of Religion and Philosophy at High Point University in North Carolina. He is also a clergy member of the United Methodist Church. His essay, entitled “Knowing Our Place: Poverty and Providence,” focuses on the speeches of God in the Book of Job, chapters 38–41, which provide the most extended treatment of creation in the entire Bible. After examining the writings of Bill McKibben, Norman Wirzba, William Brown, and Richard Bauckham on this passage, Franks concludes that all four interpreters encourage us to share Job’s displacement, so that we too can be “put in our place” and learn humility and wonder at the incredible diversity of life. Franks then reflects on the poverty of Christ, which illustrates the qualities of self-offering love toward which the story of God’s providence summons us. Christ enacted a form of divine poverty that calls humanity toward a universal love that aims to encompass all of creation. To aim at poverty is to be free of the compulsion of felt needs. Instead, one interrogates one’s needs for the benefit of others.

The thirteenth essay, entitled “Rethinking Gluttony and Its Remedies,” was written by Chris Killheffer,



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a writer and activist who has worked on small organic farms in Ireland and Connecticut. Among patristic and medieval theologians, it was fairly common to refer to gluttony as the first sin, the one committed by Adam and Eve when they ate the forbidden fruit. Killheffer first summarizes the writings of two theologians who made the most influential contributions to the Christian understanding of this sin: John Cassian in the early fifth century and Gregory the Great in the late sixth century. Writing for a monastic setting, Cassian classified three distinct ways that gluttony is expressed, while Gregory, who moved the concern of gluttony outside the ascetic ideals of the monastery, made a couple of alterations to Cassian's classification scheme. Killheffer then discusses gluttony from a contemporary perspective and concludes his essay with some possible remedies. Citing modern writers such as Michael Pollan, he summarizes his argument with the following rules: "Always eat with other people. Always eat at a table. Don't eat food with ingredients you can't pronounce. Eat food, not too much, mostly plants." These guidelines mirror those of John Cassian whose teaching regarding food consumption can also be summarized in a few words: eat communally, eat simply, and eat moderately.

Topics addressed by some of the other essays include the following: sustainability from a Franciscan perspective; land use and household stewardship; animal flourishing and suffering; evolutionary theory and the promise of restoration for all creation; and liturgy as the space in which all creation is consecrated before the cross of Christ. Finally, David Vincent Meconi, who edited this book and teaches at St. Louis University, has included his own essay, entitled "Establishing an I-Thou Relationship between Creator and Creature."

While a few of the essays are more philosophical in nature, most of them combine theological wisdom with practical application. The majority of the authors teach at Catholic seminaries and universities, so environmental concerns are mainly addressed through the lens of Catholic theology. The Bible is referenced in most of the essays and an index of scripture references is provided at the end of the book. This book should be required reading for those in leadership positions within the Roman Catholic church. Anyone with an interest in environmental ethics from historical and contemporary Christian perspectives will also benefit from reading this book. Hopefully, by reading it, more Christians will strive to become better stewards of God's creation.

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**VORACIOUS SCIENCE AND VULNERABLE ANIMALS: A Primate Scientist's Ethical Journey** by John P. Gluck. Chicago, IL: The University of Chicago Press, 2016. ix-xx + 313 pages. Hardcover; \$27.50. ISBN: 9780226375656.

"It's just a rat, for God's sake" (p. 36). So spoke a surprised lab supervisor to John Gluck at Texas Tech University in the 1960s. At the time, Gluck was an undergraduate student whose clumsy first attempt to remove brain tissue from a living rat resulted in the animal's death. It surprised him to learn that the rat's death mattered so little in that place (it was "an extra"), that there was no interest in determining the actual cause of death, and that the only thing remaining to do after the botched experiment was to throw the corpse into a garbage bin. His initial assumption that nonhuman subjects mattered was misguided, in the opinion of this supervisor. What else did he expect? It's just a rat.

This philosophical memoir (my term, though, cf. pp. 284-85) includes many such episodes. *Voracious Science and Vulnerable Animals* is the story of the author's evolving relationships with other creatures and his emerging awareness of the researcher's moral responsibility to them. He begins with his childhood fascination with wildlife and love for family pets, but he then charts the steady "erosion" of an instinctive abhorrence at causing harm to other living things. His own development of an "it's-just-a-rat" attitude was gradual, and he describes several small steps that, in time, wore down his childlike revulsion at cruelty. Among them is an account of hunting rabbits with friends—often maimed, not always killed "cleanly"—and another of temporary work on a ranch that included the brutal castration, branding, and dehorning of cattle (pp. 25-29). In both cases, the acceptance of others proved intoxicating and encouraged him to stifle any squeamishness about inflicting pain on defenseless animals. A similar craving to belong and gain the respect of others occurred while at university, especially from professors whose research, they insisted, required the sacrifice of some for the sake of a higher good. Their approval of the young scholar further steeled him against sentimentalism (see, e.g., p. 33).

But chinks in the logical armor defending against emotional attachment to research animals gradually emerged during his long career and much of the book documents how justifying deprivations, electric shocks, and more on monkeys and rats proved problematic. He builds that case in a variety of ways

(see esp. chaps. 5 and 6), but one poignant turning point in Gluck's "ethical journey" serves to illustrate the kinds of dissonances with which he grappled. He credits a stray dog with bringing "warmth and a focus of care beyond my self-centered attention" into his home and marriage, and further describes the extraordinary efforts he and his wife took to care for this German shepherd mix. The costs in time, money, and convenience were considerable, even to the point of buying a house with a yard to accommodate the new pet. He admits that the sharp contrast between domestic and professional behavior, between his efforts to keep a dog contented and healthy and his daily treatment of animals in the lab, proved startling. Beyond providing clean cages and fresh food, the comfort of those animals was "not an issue" (pp. 131-32). Other pangs of conscience would follow.

The use of animals for scientific advancement is a polarizing subject, of course, and frequently those invested in the debate one way or the other speak past one another. One thing made clear in the book, however, is that altruism motivates those on both sides. Those wanting to empty the laboratory cages altogether often insist that any knowledge gained by experimenting on living animals is ill gotten. But Gluck reminds us that compassion motivates many working in research facilities too. He writes movingly about his father and the "life-destroying repercussions" of early onset Parkinson's disease that transformed his life and the lives of other family members caring for him (p. 21). Watching his father's struggle "weighed heavily" on his mind, contributing to his interest in neuroscience (p. 171). He also refers to the anxiety and depression that "plagued" his sister and grandmother, which also explained in part his career choices (p. 40). This insider's account of his educational formation, and professional and personal motivations, is potentially a bridge builder by helping those on opposite sides of the animal ethics question to find common ground in compassion. He writes knowingly of the concerns of both. One stated aim is to help protectionists better understand what he calls "the scientists' plight" and to thereby encourage more effective dialogue with them (p. xiv). Gluck writes as a scientific insider, as a one-time practitioner of the animal research methodologies he now critiques.

Gluck worked as a behavioral scientist from the 1960s through to the 1990s but eventually left this work to devote himself to the complexities of animal research ethics. This was no easy decision. (To illustrate his intellectual reservations, see, e.g., pp. 157-60, regarding his first response to Peter Singer's seminal work *Animal Liberation*). Some colleagues were suspicious

of the "turncoat" who changed sides (pp. 280-81), but this double perspective is what makes this book so fascinating. It is easy for scientists to mock the emotional outbursts or sentimentalism of sometimes-shrill advocates who, they insist, do not understand the importance of scientific inquiry and the costs of progress. At the same time, those advocates often caricature all those working in laboratories as insensitive sadists. What we find here is a beautifully told story of one who sees the issues from both sides, who challenges both stereotypes, and in the process, presents compelling reasons to consider the animal's point of view, which is a key concern in the unfolding argument (e.g., pp. 38, 147-50). His extensive work with laboratory animals, which he describes with often-disturbing detail, assures him an audience with others doing similar work. At the same time, what he describes as his "ethical awakening" (pp. xiv; cf. 143-52) is a remarkable turn toward animal compassion sure to inspire advocates.

The book urges animal welfare reform. Gluck has much to say about institutional animal care and use committees (IACUCs), and he puts forward ways for them to improve how they operate (xiv; chap. 7). He argues that philosophical analyses of animal ethics and political and institutional regulations alone do not result in significant protections for animals unless certain conditions inform the work of IACUCs. Heading a list of eleven such conditions (pp. 279-80) is the crucial need for committee members to value animal lives "at least as much as they value animals' usefulness in research." This captures well the argument put forward in the book.

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## HISTORY OF SCIENCE

**GOD IN COSMIC HISTORY: Where Science and History Meet Religion** by Ted Peters. Winona, MN: Anselm Academic, 2017. 356 pages, index. Paperback; \$39.95. ISBN: 9781599828138.

History is getting "bigger" these days. To be sure, universal history, the attempt to provide a single overarching story of the past, received considerable popular attention in the mid-twentieth century with massive multivolume projects by the likes of Arnold Toynbee and Will and Ariel Durant. Dismissing such universalist approaches as too speculative, academic historians focused instead on monographs dealing with much smaller chunks of the past. So many historians became enamored with increasingly smaller-scale, even microhistorical, studies that the

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story of the past became fragmented. Fortunately, some historians recognized that larger-scale historical narratives were needed to make sense of the past. In the 1960s and 1970s, world history, which examined the five or six thousand years of recorded human history, emerged as a distinct subdiscipline. Large-scale historical analysis gained further momentum in the 1980s and 1990s with attention given to varieties of global history. Then, in the 2000s, a new approach to the past emerged that dwarfed all others: so-called “big history” – the grand unified story of natural and human history. This amounts to situating human history in the context of the vastness of nature’s history. Big historians engage in breathtaking syntheses that tell the story of everything from big bang cosmology, the formation and drift of galaxies, the origins of Earth, the origins and evolution of life and the biosphere, human evolution, prehistory, the emergence of agriculture, settled communities, agrarian civilizations, global networks of exchange, the birth of the modern world, and the “great acceleration” of the twentieth century.

Big history would seemingly be the most expansive approach imaginable. However, theologian Ted Peters now advances something even grander: cosmic history. This is big history with God added or, more accurately, with the human quest for God front and center. For Peters, the central question is whether God is the author of the cosmic story. Consequently, he interrogates history from a theological perspective in order to “illuminate dimensions of reality missed by other historians” (p. 18). He pointedly asks supracosmic questions of ultimacy that world and big historians avoid or answer only in the limited manner warranted by their allegiance to naturalism and scientism.

The reader may find the organization of the book to be challenging, despite Peters’s several attempts to state his main themes. Chronological (in the broadest sense of the term) and thematic discussions interpenetrate his analysis. The first part of the book ranges widely over typical big history topics: big bang cosmology, the origins of our universe and planet, the evolution of life on Earth, prehuman and human ancestors, and ancient myths of origins. Then, rather abruptly, Peters shifts his attention to a number of thematic topics: models of nature, the anthropic principle, design, determinism vs. contingency, and multiverses. The main point of this first half of the book is to argue that the big historians’ strictly scientific account of natural and human history fails to render a full account of reality—even though the “question of God is unavoidable, even within science” (p. 159).

In the second part of the book, Peters explores selected topics in world history that reveal how our predecessors engaged the question of God. He draws heavily on the work of three eminent scholars: sociologist Robert Bellah, philosopher Eric Voegelin, and systematic theologian Paul Tillich. Peters emphasizes the notion of an axial age breakthrough introduced by psychiatrist-philosopher Karl Jaspers in *The Origin and Goal of History* (1949) and developed more recently by Bellah in his monumental *Religion in Human Evolution* (2011). The axial age is a conceptual label given to the emergence of several great religious/intellectual traditions in China, India, and the Mesopotamian-Mediterranean region between 800 and 200 BCE. The axial breakthrough involved revolutionary insights into a mysteriously transcendent reality that gave rise to a reordering of “self, society, and the cosmos” (p. 20). Peters correctly maintains that in bracketing out the God question, big historians fail to appreciate that the axial breakthrough constituted an epochal “leap in human self-understanding” that fundamentally altered human consciousness.

In this second half of the book, Peters examines axial answers to the God question in the light of contemporary challenges such as astrobiology and the search for extraterrestrial life, transhumanism, and the global eco-crisis. He discusses a dizzying array of topics ranging from war and models of God to the evolution controversy and a just and sustainable future for the planet.

Peters concludes with a provocative Afterword in which he summarizes his case for cosmic history. It is well worth listing several of his key points: the cosmos comes to us as a divine gift; humans have a “built-in ontological thirst that can be slaked only by ultimate reality” (p. 328); asking the God question is justified even though it is not addressed by world and big history; history from the cosmic perspective is “the stage on which the drama between God and creation is played, a drama still awaiting its final act” (p. 330); and historians need to pay heed to God’s grace.

*God in Cosmic History* is a curious book. It appears to be a textbook (complete with review and discussion questions at the end of each chapter) for an expansive, upper-division interdisciplinary course. Though it is surely historical, the book really cannot be categorized as history in its traditional academic sense. It raises, however, profound methodological issues that most historians (“big” or otherwise) ignore and that even believing historians generally consider to be beyond their warrant as historians.

*God in Cosmic History* is probably best understood as a manifesto for a comprehensive story of reality that goes beyond big history to include the God question. Whether cosmic history has the potential to develop into a robust new field remains to be seen. If that is the goal, the project of cosmic history might find a receptive audience among those historians—few in number, perhaps—who question the rigid materialism and anti-supernaturalism of an academic history that cannot countenance the notion that “the transcendent has broken into time.” At the least, cosmic historians would do well to draw from the considerable literature of believing historians who have wrestled with variations of the God question for decades.

Regardless of how one categorizes the book or assesses the potential of cosmic history, it is an ambitious undertaking from which scholars and general readers will benefit.

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**DARWINISM AS RELIGION: What Literature Tells Us about Evolution** by Michael Ruse. New York: Oxford University Press, 2017. 310 pages. Hardcover; \$34.95. ISBN: 9780190241025.

Given the title *Darwinism as Religion*, we expect Michael Ruse’s latest book to provide a critical, historically based assessment of how Darwinism has, since the publication of *On the Origin of Species*, taken on the forms and roles inhabited by religion—as a source of meaning and a guide to human morality, as a lens through which to view the “big” questions of meaning in life. In his preface, Ruse suggests that he wants to examine “evolution through the lens of literature, fiction and poetry,” noting that he is “not using evolutionary thinking to analyze literature but seeing the influence of evolutionary thinking on literature and from this drawing conclusions” (p. x–xi). Later, Ruse asserts that this “is a story about evolution in opposition to religion, the Christian religion” (p. 36). Further, “Darwinian evolutionary thinking ... became a belief system countering and substituting for the Christian religion: a new paradigm” (p. 82). While Ruse includes chapters on God, Morality, Sex, and Sin and Redemption, what is meant by “religion” is never entirely clear, although he seems to have in mind some rather generic form of evangelical Protestantism, which is, at times, reduced to caricature. Even so, “religion” frequently goes missing from the discussion for pages as a time, leaving

one to wonder: “And what exactly does all this have to do with religion?”

The subtitle, *What Literature Tells Us about Evolution*, adds to the confusion. Does the author mean to suggest that literature can actually help us understand the science of evolutionary theory? Does he want to assess the historical reception of evolutionary theory as evidenced in literature? Or does literature itself provide evidence of an evolutionary process as the human mind comes to grips with the random, pointless nature of existence? The reader is never quite sure. The author apparently feels no obligation to make his argument clear in what he aptly terms a “collage” (p. x) but instead leads his reader on an idiosyncratic journey through the “writings that have filled [his] life with joy and inspiration” (p. xi). His joy seems to have been found primarily in the work of Thomas Hardy, one of the bleakest literary translators of Darwinism, whom Ruse sees expressing

something in the world without the Christian message of hope. And time is an essential part of this. We are of the Earth. We came from it. We go back to it. That is all there is. Time goes on. There is no meaning, at least not in any conscious, Christian sort of way. (p. 105)

The breadth of Ruse’s reading is clearly epic: it appears that he has intimate familiarity with most popular fiction and poetry written in the nineteenth century (in both Great Britain and America), and to a large extent with the transatlantic literature of the twentieth and twenty-first centuries. He admits,

I am absolutely staggered at the amount of material I have found pertinent to my inquiry and hugely impressed at the sophistication and sensitivity of the massive corpus of secondary material. (p. xi)

If nothing else, Ruse leaves the reader feeling similarly overwhelmed. While he does provide frequent plot summaries (which can sometimes seem reductive), in general, Ruse assumes that the reader has a similarly encyclopedic understanding of this material. He dips in and out of novels and poems continually—Browning, Dickinson, Yeats, Huxley, Eliot, Stevenson, Meredith, Norris, Kipling, Twain, Kingsley, Rossetti—returning frequently to major figures, especially Thomas Hardy, in the various subchapters. The result is that we receive no coherent analysis of any one text in its historical context, but instead we find scattered notes, which presumably are connected to the topic named in the chapter title. This constant oscillation among authors adds to the incoherence of the book.

Another persistent fault of the book lies in its inadequate grasp of the principles and conventions of literary analysis. At the most basic level, this involves

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providing a context for quotations, especially lengthy block-style quotes, and then following them with an explanation of how the language of the source material supports the claim the critic is making. Unfortunately, not only is Ruse's argument seldom clear, but he frequently fails to provide even minimal introduction to quoted materials. The reader is often at a loss as to whose words and from which source was intended. And then the text is left to stand for itself, as if its meaning clearly supports the obscure argument without further effort from the author.

The prose style is chatty and familiar in tone, as if the author and reader are old friends who share the same opinions and ideas—this may be why the author failed to make a pointed, rigorous argument. An example of his many asides occurs when he treats the work of Marilynne Robinson, noting, "Somewhat ironically, given themes in her fiction, one of her greatest admirers is Barack Obama, the first black president of the United States" (p. 274). Ruse never defines these themes, leaving the irony ambiguous. One is left to assume that he considers Robinson's novels racist, although the plot summaries and quotations he offers do not really support such a view. The reader, it appears, is supposed to accept the opinion uncritically.

The reader occasionally wonders if Ruse feels a vague sympathy with some of his "religious" authors, but by the end of his compilation, it is clear that he finds them deluded. Again, it is unclear whether he is paraphrasing their thoughts or articulating his own. Discussing Amy Clampitt's poetry as an example of an attempt "to make the case for Christianity in a Darwinian world," he notes, "One has another intimation of the theology of Job, of a God who allows and perhaps even commits what we judge evil" (p. 266), and then interjects two stanzas from a Philip Appleman poem which opines, "God has the morals / of a Babylonian butcher" (p. 268). Near the end of the book, he references "Pattiann Rogers, one of America's leading Christian poets," presumably because Rogers uses the term "god" in her poetry, certainly not because she makes any claim to that title (p. 260). While he nods at Marilynne Robinson's neo-Calvinism, a consideration of Annie Dillard is mysteriously absent. By the last page, it seems reasonably certain that Ruse views religion primarily as a set of outdated myths that serve alternately as a panacea for human anxieties and as a spur to meaningless violence: "Finally, will people see the damage that religion does? Will they recognize the evil that lurks at the heart of every faith system?" (p. 268). Of course, such pernicious ideas are best replaced by an acceptance of Darwinian realities suggested to the author by the Book of Job.

To his credit, Ruse occasionally recognizes that both Christianity and Darwinism are complex fields of thought: "It is important to stress these ambiguities in the Christian position, because they are echoed in Darwinism and in the literary responses and interpretations" (p. 129). The book as a whole suggests that Ruse maintained an inadequate critical distance from his materials, the result being more polemics than well-crafted persuasion.

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## SCIENCE AND BIBLICAL STUDIES

**CHANCE IN EVOLUTION** by Grant Ramsey and Charles H. Pence, eds. Chicago, IL: The University of Chicago Press, 2016. vii + 359 pages. Paperback; \$45.00. ISBN 9780226401881.

Those following the literature on theological responses to the natural sciences will be aware that there is a small industry of books that has appeared in the last few decades responding to the notions of chance and randomness operative in the evolutionary history of the world. On the one side are those in the Wesleyan-Arminian and, more recently, open theistic and process traditions that have advocated a theological vision of divine providence working in and through the chance of creation's processes; on the other side are, usually, Reformed thinkers, especially conservative (often Westminster confessional) theologians, who have labored to insist on God's sovereignty sometimes despite but more often over the appearances of fortuitousness and haphazardness in the nature of things. The book under review is by and large unconcerned with adjudicating the theological debates, although there is plenty of historical and scientific analysis here that will be pertinent to theologians devoted to engaging the issues.

The three parts of the book explicate, respectively, historical developments (five chapters), biological processes (three chapters), and history-of-life perspectives (four chapters) related to chance in evolution. The first section is quite interdisciplinary, starting with a historical overview of notions of contingency, chance, and randomness from the ancient through medieval periods and as received in modern biological science (authored by a historian of rhetoric who has focused much of his life's work on the history of biology). The focus then shifts to chance in the development of Darwin's thinking, and its reception since (by a historian of science), and then chance in the modern (neo-Darwinian) synthesis (co-authored by four philosophers). It then segues into Christian

theological responses (written by a theologian) and concludes with an analysis of chance in relationship to Darwinian evolution (by a philosopher of science).

The cumulative effect of these chapters is the realization that with respect to the theological issues at stake, historical attentiveness and transdisciplinary engagement will clarify misunderstandings and situate the concerns in contexts that invite reconsideration of contested variables otherwise often locked into parochial frames. For instance, even across the evolutionary sciences, there is no such thing as absolute chance; whether in terms of contingency, randomness, or probability, chance always unfolds in connection with other determined aspects or variables so that we do not need to turn to theology to elucidate such relationships.

The chapters in the second part will be most relevant to those with interest in biological evolution but, commensurately, will be most challenging for theologians or others without training in this field. The fundamental questions regarding genetic mutations are explored in relationship to natural selection and evolutionary drift (in which the frequency of gene variations shifts over generations) and in regard to parallel evolution (thus comparing and contrasting lineages that diverged in the past from a common ancestor), noting variously that mutation is random and adaptation is probabilistic. Helpful here is the clarification of “strong” versus “weak” randomness, with the former involving stochastic (causal) processes constituted by indiscriminate and hence probabilistically equivalent processes of elemental replacements that are invariant over time (so that mutations are no more or less likely to occur at any site of that process), and with the latter involving same processes that are either discriminate (hence probabilistically un-equivalent) or variant over time, or both. The discussions in this part of the book invite theologians to be clear about how biologists are understanding and using notions of chance in their work.

The four chapters at the end of the book each take as their point of departure the work of paleontologist Stephen Jay Gould, not least his renowned theory that if we were to replay the tape of evolution all over again, we would observe very different creatures than we have now. Two of the essays delve into the details of contingencies related to the Cambrian era (the period that is most pertinent to Gould’s thesis), tracking the progression of research in the last three decades or engaging the counter argument of Simon Conway Morris and others, that niche environmental constraints suggest that such replay would inevitably lead to creatures much like we have now (due

to selection factors). The other two chapters focus on the famous *E. coli* Long-Term Evolution Experiment, which traced the evolutionary histories of twelve initially identical populations of the bacteria, in varying environments, over (by now) sixty thousand generations in order to explore the implications of such for comprehending evolutionary contingency. Consequently, siding with or against Gould is not only complicated but begs considerations in multiple directions, given the advance of knowledge at this stage.

In a prior generation, chance explanations related to the unpredictability of development or the obscurity of causal histories, thus having a more epistemological character indicative of a lack of scientific knowledge in certain areas. In the current climate, given the consensus that quantum randomness pertains at the ontological level, views of chance have shifted toward being naturally intrinsic to the way life processes are. Yet even here, historicity is crucial, particularly—as many of the essays highlight—that historicity of the pathways related to evolutionary speciation. There is no getting away from the stochastic contingencies related to gene flow and mutation but there also is no denying that such unfold amidst the selective and adaptive pressures exerted by nature and the environment. Theologians open to thinking further about the nature of chance and randomness in relationship to divine providence will benefit from, and be updated by, this wide-ranging volume.

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## SCIENCE AND RELIGION

**SCIENCE AND CHRISTIANITY: Foundations and Frameworks for Moving Forward in Faith** by Tim Reddish. Eugene, OR: Wipf and Stock, 2016. 190 pages, bibliography, index. Paperback; \$25.00. ISBN: 9781498296045.

“What, another book on science and Christianity?” Such were indeed the initial thoughts of this reviewer. In fact, these are the introductory words of the author himself. Tim Reddish goes on to explain part of the motivation behind the book: the backdrop of the numerical decline of established churches. The author then answers his own question by explaining that the target for this work is primarily ministers and seminary students.

Reddish himself is a relatively recent seminary graduate (MDiv, 2015), from Knox College in Toronto, one of three seminaries operated by the Presbyterian

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Church in Canada. This may explain, in part, his ability to reach his target audience. He is also a physicist (PhD, Manchester, UK). After spending time at the Newcastle University, Newcastle upon Tyne in the UK, he moved to Canada, and was a professor of physics at the University of Windsor. He commenced his Knox College studies in 2011.

The subtitle of the book is *Foundations and Frameworks for Moving Forward in Faith*. As a Knox graduate myself, I would note that Reddish was paying close attention to the preaching class that covered the topic of alliteration! The phrase does reveal, however, the well-structured nature of the book, although there are some refreshing alterations to usual approaches on this well-covered topic. For example, while many books tend to handle the topic of Genesis in earlier sections, the author saves this for the final chapter, which is entitled "Revisiting Science and Scripture: Creation Texts in the Old Testament." There are also two short appendices covering theistic arguments for the existence of God and metaphysics.

The first two chapters focus on Scripture. In addition to a historical overview, a primary topic of chapter 1 is the "Galileo Affair" (author's quotes). We see another of the author's propensity for alliteration, as he summarizes the complexities of the affair as concerning "power, politics, patronage, popes, precedents, principles, polemics and personalities." The chapter concludes with a useful section entitled "Galileo: Lessons for Today," noting that, "Sadly, some Christian traditions are simply fighting an outdated war with the wrong tools."

The second chapter continues the focus on scripture, particularly its inspiration and interpretation. Amongst the theologians cited is Bradley McLean, who is professor of New Testament Language and Literature at Knox College. Reddish makes extensive and appropriate use of McLean's book *Biblical Interpretation and Philosophical Hermeneutics*, and cites the utility of two types of meaning of a text: the original founding sense event, and a reinterpretation of its significance in every subsequent generation.

The next two chapters then focus on the nature of science (chapter 3) and relating science and Christianity (chapter 4). Like others, the author uses the classifications of Ian Barbour (Conflict, Independence, Dialogue, and Integration). In this case, the author makes considerable efforts to review the strengths and weaknesses of each classification. This chapter is worthy of (and requires) several reads, but provides a useful backdrop for the remainder of the book.

This reviewer found the last four chapters of the book the most intriguing. Chapter 5 is entitled "On Chance, Order and Necessity." It builds upon two opening quotes, one from Ecclesiastes 9:11 concerning the ubiquity of both time and chance, and the other from Stephen Hawking who admits that those who believe in predestination still look both ways before crossing the street. Reddish states: "In reflecting upon points of possible tension and potential connection between science and faith, I have become convinced that one key issue is that of chance." He goes on to build his case for the importance of both contingency and necessity by extensively citing a number of scientist-theologians, including Peacocke, Polkinghorne, and Barbour, amongst others. He concludes, "I advocate that the quest for modernism's certainty, which is embodied in physical and theological determinism, needs to be abandoned." Encouraged by 2 Corinthians 5:7, he supports the contention that the opposite of faith is not doubt, but certainty.

Reddish follows this up with two related chapters, more theological in emphasis: chapter 6 "On the Nature of God," and chapter 7 "On Miracles and Prayer." As with the previous topic (and others covered in the book), the author notes at the start of chapter 6 that "even the nature of God is not as straightforward as Christians think." Topics covered include the Trinity, immutability, omnipotence, and omniscience. On the topic of miracles and prayer, Reddish builds upon the relational nature of God and notes that any serious dialogue between science and Christianity "must recognize God's covenantal commitment to humankind (and indeed the whole creation)."

As mentioned, Reddish uses the final chapter of his book to review aspects of science and Scripture through various creation texts. This includes not only early chapters of Genesis, but the creation texts of the Psalms, Job, etc. Of particular note are the references to chaos. Reddish builds a case for order and chaos as being "inseparable," both necessary in sustaining life.

Four of the book's chapters contain a specific "Summary and Conclusion" section. There would have been value in carrying this on throughout the book. As a minister, I appreciated the pastoral approach that Reddish took in handling complex subjects, as he shared in detail all sides of the issue. As a former geologist, I appreciated his review of the nature of science itself, and the interpretations concerning the role of chaos in creation (including such things as plate tectonics. I also appreciated the

opportunities taken by Reddish to share his own views, which will resonate with many ASA/CSCA members. In his conclusion to his final chapter, for example, he encourages his readers to embrace the biblical stories on their own merits and (following Barbour) advocates for an independence stance between science and scripture, while endorsing a dialogue perspective between science and theology. There are those who may wish to push further toward a more concordist position. However, Reddish argues in chapter four that one must be careful about making the text say something it never said, and that while concordism's hermeneutic is well meaning, "it is ultimately flawed."

In David Livingstone's book *Dealing with Darwin* (Johns Hopkins University Press, 2014), there is a chapter entitled "Toronto, Knox, and Bacon's Bequest." The "Knox" refers to the aforementioned college, and Livingstone notes that in the mid to late 1800s, the intellectual leadership at the college displayed "a notable willingness to engage in a creative conversation with evolutionary theory." Tim Reddish carries on with that tradition. He has delivered to his target audience well, but I would happily recommend the book for more general use also.

*Reviewed by Bob Geddes, a retired Presbyterian pastor, former geologist, and secretary-treasurer of the CSCA.*

**FINDING GOD IN THE WAVES: How I Lost My Faith and Found It Again through Science** by Mike McHargue. New York: Convergent Books, 2016. xiv + 274 pages, notes, index. Hardcover; \$24.00. ISBN: 9781101906040.

*"The first gulp from the glass of natural sciences will turn you into an atheist, but at the bottom of the glass God is waiting for you."* (Werner Heisenberg)

A more fitting epigraph could not have been chosen for this book. Mike McHargue, who goes by "Science Mike" these days, has been on a wild ride for the past few years. A college dropout turned autodidactic marketing VP, McHargue is now a full-time writer, speaker, host of the podcast *Ask Science Mike*, and co-host of *The Liturgists Podcast*. Readers of *PSCF* are likely to be familiar with his work with BioLogos in addition to his contributions to various magazines and blogs. *Finding God in the Waves* weaves these projects together into two parts that are essentially interleaved. The first functions primarily as a memoir of McHargue's conservative Southern Baptist upbringing, his slide into atheism, and his subsequent rediscovery of faith. The second explores how McHargue understands the intersection of science and faith today.

While he makes it clear that he is not a trained or working scientist, McHargue nevertheless possesses a unique ability to synthesize the literature into a form that is accessible and engaging to laypersons and scientists alike. With highly visible science popularizers like Tyson and Nye sometimes demeaning the religious, McHargue's ability to convey scientific concepts accurately from a radically inclusive posture is a breath of fresh air.

Regardless of one's position on where McHargue ends up theologically, it is hard to deny the power of his journey. As a self-described nerdy kid with a learning disability, bullying was a constant companion throughout his childhood. In a particularly emotional passage, he tells of how he hid amongst the trees during recess to avoid physical abuse, spending the entire time talking to his only friend—Jesus. Discovering that computers could help him overcome his learning disabilities, as well as experiencing a rock star streak in his teens, led McHargue to a place where he could develop healthier social ties. The church played no small role in this; he was ordained as a deacon at the age of 25.

McHargue's story of an unraveling faith departs from familiar accounts here. It was not Big Bang cosmology, or evolution, or the problem of evil that sparked doubt; it was reading the Bible itself. McHargue was blindsided by his father's intention to seek a divorce after nearly thirty years of marriage. Intent on helping his father see the gravity of this sin, McHargue tackled the problem by throwing himself into the scriptures. Having never read the Bible from cover to cover before, McHargue read it through four times in one year. Apparent contradictions that he had overlooked before and troubling passages that he had been able to explain away began to rear their heads anew; paradoxically, constantly steeping himself in the text made these harder to ignore. Clearly a voracious reader, McHargue sought insight from apologists and atheists alike as his faith continued to erode—until reading Dawkins's *The God Delusion* finally tipped him over the edge.

McHargue spent the next two years as "the world's least interesting secret agent—an atheist under deep cover in the Baptist church" (p. 74). He was eventually found out by his wife, and his "secret" nearly destroyed his own marriage. They managed to work it out and McHargue became, by all accounts, a well-adjusted secular humanist. However, at a conference on creativity hosted by Rob Bell, McHargue had a series of profound mystical experiences that culminated in a moment on a Californian beach in the middle of the night where he "felt connected to the Source of Life and the Source of All" (p. 127).



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It is from these notably *unscientific* experiences that McHargue launches the second half of the book, which expounds his *prima facie* case for the core tenets of the Christian faith using scientifically grounded premises that even the most ardent atheist would have to concede as valid. These “Axioms about Christian Faith” have gained some degree of notoriety in the blogosphere and are aggregated in an addendum. While each is a soft argument in comparison to traditional doctrinal statements, his goal is simply to make the case that belief itself is reasonable.

While McHargue draws upon physics, he leans most heavily on Andrew Newberg’s work in neurotheology and Tanya Luhrmann’s anthropological work with evangelicals. He interacts with their work admirably, but the set of beliefs he constructs are constrained to a bare-bones natural theology by necessity.

In this regard, those unsatisfied by Einstein’s God may be disappointed with McHargue’s specific conception of prayer, the members of the Trinity, the Bible, et cetera. It is worth reiterating that McHargue consciously chooses *not* to construct a systematic theology in this particular undertaking. Rather, his goal is to demonstrate that Christian beliefs are not merely benign but that they are functionally beneficial both to the individual and to society. There is value in creating an irreducible scaffold on which to frame the beliefs one finds indispensable. This may prove especially true for those struggling to hold on to faith or those seeking faith for the first time. The project is meant as an aid in doing the “good kind [of pretending], where the pretense leads up to the real thing” that C. S. Lewis argues for in *Mere Christianity*.

Putting the weight of the argument on neuroscience, anthropology, and social psychology of belief is a boon for some and a potential pitfall for others. McHargue’s emphasis on contemplative practices as opposed to strict adherence to doctrine will be liberating to those who find themselves incapable of intellectually assenting to particular beliefs, while others might question the point of engaging in spiritual practices that can be reduced to mere brain states. On the other hand, scientists know better than most that understanding the underlying processes of a system can often lead to a deeper appreciation of the subjective beauty of the whole.

Ultimately, *Finding God in the Waves* is a product of the zeitgeist. Readers comfortable with the work of Barbour may find McHargue’s open posture to be radical, even troublesome, especially his full embrace of even the most troublesome scientific findings (*viz.*,

the Benson et al. and Swinburne intercessory prayer studies). Those looking for robust theology may criticize McHargue for failing to bridge the gap between the god of the mystics and the God of Christianity, a charge he concedes. Nonetheless, as the epigraph’s author might surmise, the ability to accommodate uncertainty is necessary even in the face of protests that “God does not play dice.” In an age of unprecedented scientific advancement, this is a book for those crying out, “I believe; help my unbelief!” (Mark 9:24).

*Reviewed by Gabriel Harder, Infinite Campus, Minneapolis, MN 55449.*



## SOCIAL SCIENCE

**CONFIDENT PLURALISM: Surviving and Thriving through Deep Difference** by John D. Inazu. Chicago, IL: The University of Chicago Press, 2016. 176 pages. Hardcover; \$29.00. ISBN: 9780226365459.

The American society that steps from the pages of *Confident Pluralism* is diverse indeed, composed of bikers and Baptists, lesbians and xenophobes, occupy protesters and labor unions, *Big Mama Rag* and Bob Jones University. Pluralism is real, apple pie American, but as partisan polarization and violent confrontations across deep differences forcefully demonstrate, America embraces it only with reluctance and resists its implications. American history also attests to this reluctance, which the reader meets in the story of Lily and Taizo, the author’s grandparents, whose Japanese ancestry earned them internment after Pearl Harbor, despite their being American citizens who had never set foot in Japan.

To address these challenges, Inazu argues for a set of constitutional principles and civic practices that he dubs “Confident Pluralism.” For each of these Inazu presents a triad of imperatives. The constitutional principles include freedom of association, protection of public and private spaces for the exercise of this right, and the guarantee of equal treatment by government. Civic practices include tempering free speech by softening its tone; practicing tolerance, humility, and patience in boycotts, strikes, and protests; and seeking to bridge deep differences in search of common ground.

Inazu finds the legal-constitutional infrastructure for confident pluralism wanting in the American constitution. The Constitution contains no explicit right of association, whose protection relies instead on the First Amendment’s free speech clause, from which the courts have fashioned twin rights of intimate and expressive association. The first is so restricted that Inazu finds it “almost meaningless,” while the

second makes a group's right to associate dependent on proving a religious, social, educational, or similar purpose. Thus the Top Hatters, a motorcycle club, failed to qualify as an expressive association, while the Minnesota Jaycees found that even a successful demonstration of that status guaranteed no protection against the state's interest in eradicating discrimination, forcing the group to admit women. Religious groups at public universities have discovered that expressive association is no protection against "all-comers" policies that require them to admit as members or even leaders any student who wishes to join. Against these restrictions, Inazu insists that government demonstrate a compelling interest before interfering "with the membership, leadership, or internal practices of a voluntary group."

Time, place, and manner restrictions have weakened the Public Forum Requirement, while the court's insistence that these restrictions be "reasonable," "neutral," and make available "ample" alternative venues for communication places few restraints on government in practice. Here the examples stretch from Ferguson, Missouri, to sidewalk protests outside abortion clinics. Alongside the parks or city streets that comprise traditional public forums are the private-public forums such as shopping malls, social networks, and online commerce sites. Here the right to occupy such a forum—or in the case of New York's privately owned Zuccotti Park, to occupy Wall Street—faces significant restriction from the private property right.

For traditional forums, Inazu again argues for a compelling interest standard for restricting the Constitutional protection for voicing dissent, and would extend that standard to private-public forums in some cases. "Confident pluralism does not allow us to exclude from generally available resources those groups that we don't like." For Inazu, the Supreme Court's 1983 decision to uphold the IRS's action revoking Bob Jones University's tax exempt status because of its ban on interracial marriage, violates pluralist norms. This third, most controversial, precept is the public funding requirement, which declares that "When the government offers generally available resources (financial or otherwise) to facilitate a diversity of viewpoints and ideas, it should not limit those resources based on its own orthodoxy." Inazu, of course, is no friend of the ban on interracial dating, but he is a friend of a pluralist public square.

In a mirror image of the first part of the book, the author's exploration of confident pluralism's civic aspirations yields three imperatives, one each for speech, collective action, and common ground. Inazu juxtaposes the permissiveness of the First

Amendment to the many attempts to limit it, via the "hurtful insult," the "conversation stopper," and the deploying of stigmas, insisting that we embrace a commitment to "soften our tone," and embrace "living speech, even in the midst of real and painful differences, [which] can be one of our most important bridges to one another."

As for collective action, "boycotts, strikes and protests," their legitimacy should be weighed against "the civic aspirations of tolerance, humility and patience." This section closes with a brief chapter on the search for common ground—the third civic practice imperative—in which the author features unexpected friendships that have formed, such as that between Larry Flint and Jerry Falwell, that underscore an important reality that "we're stuck with this difference," or as one might say, our deep differences flow from the most cherished liberties of the American republic.

"One might think," muses Inazu in his introduction to the Constitutional principles section of the book, "that increased awareness of religious diversity in Establishment Clause doctrine. But that has not happened." The rest of this section is devoted to explaining how it might happen. However, readers should pause a little longer than the author does to consider why a broader pluralism of confessions, religious and otherwise, has not taken hold. For though Inazu's prescriptions for achieving confident pluralism seem eminently reasonable and fair, confident pluralism comes into sharp, perhaps debilitating, conflict with the American public philosophy of natural rights liberalism. That public philosophy purports to form sufficient common ground for a free, equal, and diverse society. But there's a catch: natural rights liberalism protects its privileged status, leaving genuine pluralism vulnerable to restrictions on groups and viewpoints seen as threatening its norms. Confident pluralism's American challenge is that it must overcome political and cultural instincts that resist its principles—a tall order to say the least.

What may secure these principles? Individualist public philosophies cannot do so because individual liberty reflects at best a partial vision of what it means to be human. The social and transcendent character of human beings that scripture describes, and that traditions such as the neo-Calvinist and Roman Catholic affirm, seems capable of supplying the full three-dimensional view.

Consider Abraham Kuyper's pluralist vision that endures via its contribution to twentieth-century Christian democracy. Taking as his point of depar-

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ture the sovereignty of God, Kuyper sketched out a society-wide structure of obedience to his sovereign. He distinguished the government's obligation to do public justice from nongovernmental tasks such as raising children, creating prosperity, or doing works of charity—tasks no less God ordained than doing justice. Alongside this “sphere sovereignty,” and the limited government it recognizes, Kuyper asserted a robust conception of religious liberty writ large so as to encompass the traditionally religious, those who reject traditional religion, and everyone in between. This confessional pluralism recognizes that, for example, parents are the primary educators of their children, whom they will raise in accordance with their basic beliefs. Government's task is to extend support and deference to those beliefs, regardless of their content. But Kuyper's pluralism put roots down into an already socially pluralist soil—Inazu must contend with the thin soil of American individualism.

Christian sensibility and the public justice that its moral imperatives call forth lend their influence to *Confident Pluralism*, albeit Inazu eschews an expressly religiously grounded appeal. Even so, his is a persuasive argument, well organized and very clearly written. Students of our contemporary struggles, from Ferguson to Charlottesville and on university campuses, will be the wiser for considering its merits.

*Reviewed by Timothy Sherratt, Department of Political Science, Gordon College, Wenham, MA 01984.*



## TECHNOLOGY

**THANK YOU FOR BEING LATE: An Optimist's Guide to Thriving in the Age of Accelerations** by Thomas L. Friedman. New York: Farrar, Straus and Giroux, 2016. 486 pages. Hardcover; \$28.00. ISBN: 9780374273538.

Thomas Friedman continues his series of books identifying mega trends that influence living at both a personal and global scale. *Thank You for Being Late* establishes the year 2007 as the epoch of titanic alterations in our social, political and environmental structures. That was the year the iPhone emerged, the Android operating system appeared, IBM's Watson super computer began making its mark, personal DNA sequencing costs had a precipitous decline, and a host of other technologies matured further and faster. Friedman describes how these ignited an overwhelming change in our world through a journalistic style of writing that includes interviews, second-hand research, and personal reflection. In addition to a historical analysis of how these changes

came about, Friedman also offers solutions for the negative consequences.

After an opening chapter, in which he uses the vehicle of a personal story to explain his journalistic style and the source of his personal values, Friedman discusses three forces that have changed and will continue to change our future: Moore's Law, Globalization of Marketing, and “Mother Nature.” He advocates that there are links between these forces. Succinctly, the pace of innovation has dramatically driven our ability to organize at a global scale. That expansion of industry has exacerbated the consumption of our earthly resources, which ultimately accelerates global climate change. The increased pace of innovation presents unprecedented challenges from personal privacy to global warming. The foundation of the problem is the inherent inability of humans to adapt to changes in a timely way. Friedman's quote of Jeremy Grantham succinctly sums up the problem: “we humans are wickedly bad at dealing with the implications of compound math.”

His observations about the benefits and penalties of accelerating technologies seem well balanced. For instance, he points out new opportunities created by technology. These include the use of data mining for more efficient agricultural production and the use of robotics leading to an expansion of careers, even though the initial impression is one of only displacing workers. Yet, the technology that has made marketing more efficient has potentially sinister implications: for instance, the unique identifier of any computing device (known as a MAC address) can be exploited through cell phone usage to make one's personal habits known to the entire world.

Friedman explores the accelerations from a faith perspective in the chapter “Is God in Cyberspace?” Friedman begins by considering Jewish teachings interpreted by a favorite rabbi. This discussion about good versus bad boils down to the claim that God is in those places where we let him in. While this can invite an extensive theological discussion, the main point Friedman makes in this chapter is that goodness is possible through a community effort (local or global). Beyond that, the book encourages a healthy discussion about stewardship and the ethical considerations of technological progress (i.e., technology is not neutral).

For me, the book became disappointing as it transitioned from exploring and explaining the nature and impact of the forces to his contemplation on reconsidering historical values. His vehicle for this is a reflection on his formative years in St. Louis Park, Minnesota, contrasted to the current nature of his

hometown. Based on the background of accelerated forces and his trip down memory lane, he provides a recommended 18-point platform for a hypothetical political party closely aligned with Mother Nature. Each point could justify its own chapter, but each has limited analysis on the pros and cons.

In conclusion, *Thank You for Being Late* is an informative up-to-date read about the state of information technology and the historical background to the globalization of markets, especially in the first half of the book. However, its editorial nature and lack of a bibliography and research notes would not make it a primary resource for research. For me, it bogged down in the latter portion.

*Reviewed by Patrick M. Bailey, Associate Professor of Information Systems, Calvin College, Grand Rapids, MI 49506.*

**THE TECH-WISE FAMILY: Everyday Steps for Putting Technology in Its Proper Place** by Andy Crouch. Grand Rapids, MI: Baker Books, 2017. 224 pages. Hardcover; \$13.99. ISBN: 9780801018664.

When I first heard that Andy Crouch had a new book about living wisely with technology, I knew I had to get a copy. I have read several of Crouch's previous books including *Culture Making*, *Playing God*, and *Strong and Weak* and greatly appreciate his insights and friendly writing style (he is also an engaging speaker). His latest book does not disappoint and applies his wise and winsome style to the perplexing issue of "putting technology in its proper place."

The book opens with a delightful forward by Crouch's 16-year-old daughter. In it she writes articulately and thoughtfully, indicating that the lessons her parents taught have been taken to heart. In the following section Crouch states "[t]his book is about how to find the proper place for technology in our family lives—and how to keep it there" (p. 16). The book is sprinkled throughout with results from surveys of parents with children ages 14–17 years, carried out by the Barna Group. These survey results reveal the extent to which technology has impacted home life and how parents have been wrestling with the resulting challenges. One such survey reveals that most parents believe technology and social media make it "more difficult to raise kids today" (p. 27).

Crouch begins by laying the ground work for establishing the need for "nudges" (pp. 33–35) and "disciplines" (pp. 35–37) to help keep technology in its "proper place." Crouch then introduces "Ten Tech-wise Commitments" which include items such as to "create more than we consume," to remember the "rhythm of work and rest," to avoid screens

before double digit ages, to "learn to sing together," and to "show up in person for the big events of life" (pp. 41–42). These commitments form the structure for the rest of the chapters of the book. The last chapter deals with the commitment of "being there" in which Crouch shares his own profound experience—sitting bedside with a dying friend.

All these commitments are indeed wise, but I admit to being surprised by the commitment to "learn to sing together." Crouch is a musician and comes from a musical family, so perhaps this suggestion reflects his own family and background. I suspect your mileage will vary with this particular commitment, depending on the musical abilities of your family. However, Crouch also ties this point to the issue of music in worship and makes some excellent points about the importance of congregational singing and what can be lost with amplified music and praise bands.

I must confess, at times his "ten commitments" made me uncomfortable, as they reminded me of the myriad ways I have fallen short in keeping technology "in its place" in my own life. However, each chapter ends with a Crouch family "Reality Check," wherein Crouch confesses frankly some of the ways his own family has struggled with these commitments and has fallen short. I found many of these "reality checks" to be refreshingly candid and helpful.

I have only small quibbles with a few sentences in the book. At one point Crouch suggests that "the problem isn't with our devices themselves—it's with the way we use them" (p. 148). Elsewhere he writes that "technology is at its best a neutral factor in what is most important in our families" (p. 66). Statements like these under-emphasize or miss the point that technology is not neutral and that technology is value laden. Media ecologists like Marshall McLuhan or Neil Postman have helped make the case that although we shape our tools, our tools always shape us. Indeed, many of the points that Crouch makes in the book are evidence that digital devices are not neutral and that we need to be aware of their built-in biases and nudges. In fact, near the beginning he writes, "The makers of technological devices have become absolute masters of the nudge" (p. 34).

At another point Crouch suggests that "technology emerges from the amazing success of modern science, and the hard work of scientists, but it's not like science at all. Science is hard. Technology is easy" (p. 51). While technology does utilize science, I would argue that science and engineering are distinct cultural activities. While I acknowledge that Crouch is talking here about how using technology

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is easy, the engineer in me is quick to add that the work of designing and developing technology is also difficult, just as science is.

As a computer teacher, I have been invited on a few occasions to speak to parents at schools about navigating a world of digital devices. The truth is, I have only limited practical guidance to offer, and as a parent I have had struggles with this in my own family as well. However, if I should be asked again to speak to parents on this topic, I will heartily recommend this book. Besides parents, this book is suitable for anyone who is seeking ways to “put technology in its place” in their own lives.

*Reviewed by Derek Schuurman, Professor of Computer Science, Calvin College, Grand Rapids, MI 49546.*

**DISRUPTED: My Misadventure in the Start-Up Bubble** by Dan Lyons. New York: Hachette Books, 2016. 259 pages. Hardcover; \$27.00. ISBN: 9780316306089.

What do you do if you are a 52-year-old journalist who has been laid off because *Newsweek* is reducing its workforce? If you are Dan Lyons, you find out that there are few non-entry-level jobs in journalism and you end up in a tech start-up.

*Disrupted* chronicles Lyons’s uncomfortable journey through this transition. In the book, he describes his shifting emotions as he navigates the transition and turns his journalistic training toward observing the company (and industry) he has joined.

He finds a job at HubSpot, a start-up that is selling marketing software, primarily to small and mid-sized businesses. The company offers ways to get potential customers to contact the business, as opposed to cold contacts or unsolicited advertising.

HubSpot hires him as a high profile journalist/blogger, but once he arrives, the executives who hired him never actually meet with him. He is placed under a manager who is quite young and who has little experience in industry. In fact, the average age of employees is 26—half his age. The company hires many white, middle class workers straight out of college at low wages but with a promise of a fun place to work and a mission to make the world a better place. Lyons characterizes the culture of HubSpot, and many similar companies as (quoting former Zillow employee Rachel Kremer) “the culture of a frat house” (p. 55): free beer and candy, parties and costumes at work, and lots of effort to generate enthusiasm for the company. Lyons likens it to “a cult based around marketing” (p. 48).

It quickly becomes clear that there is a huge cultural divide. Lyons is old and feels ignored by his coworkers. His lack of fit in other ways exacerbates the age difference. He describes himself as a reporter: “Reporters are trained to hate corporate jargon and to eliminate it, not to engage in it. We’re expected to be cynical and skeptical, not to be cheerleaders” (p. 56). It does not take long for his cynical, snarky personality to confuse and then alienate him from pretty much everyone else at the company. (Readers who are not comfortable with periodic profanity may find parts of the book disconcerting.)

The book follows his series of misadventures, eventually leading him to leave the company for something more suitable. In the process, he highlights a number of issues that he regards as serious problems in both the company and the tech start-up world. He also has unflattering comments about his managers and coworkers (all but the two company founders are given pseudonyms—such as Cranium, Wingman, Trotsky, and Spinner).

The reader will need to decide whether some of the author’s difficulties are self-inflicted or if his coworkers are vindictive and hyper-sensitive. Of greater importance are issues such as the following (he does not limit these issues to HubSpot, but that is the source of his observations):

**AGEISM:** He takes exception on both moral and business grounds to the dramatic scarcity of workers over forty. Lyons gets into trouble by criticizing, via social media, the following public statement by one of the founders: “In the tech world, gray hair and experience are really overrated. We’re trying to build a culture specifically to attract and retain Gen Y’ers” (p. 146).

**A LACK OF DIVERSITY:** Besides one of the two founders, there are almost no employees who are not white. There are many women, but few of them in executive or board positions (p. 153).

**SILICON VALLEY <THE TECH WORLD>:** This is “a world where older employees are not wanted, where people get tossed aside when they turn forty. It’s a world where employers discriminate on the basis of race and gender, where founders sometimes turn out to be sociopathic monsters, where poorly trained (or completely untrained) managers abuse employees and fire people with impunity, and where workers have little recourse and no job security” (p. 115).

**THE START-UP BUSINESS MODEL:** Some of Lyons’s harshest criticism targets the business model of tech start-ups. HubSpot and many of its peer companies have never made a profit. This does not matter as long as they

keep growing revenue. Once HubSpot has an IPO, the founders and venture capitalist investors will make a lot of money. Even before the IPO, these people at the top are making millions (their personal profits are greater than the hundreds of millions that the company is losing). The company may never make a profit. If there is another tech bubble burst, the mom-and-pop investors in the company and the young employees will lose. Many of those at the top will have already cashed in (pp. 115–17).

This is the New Work, but really it is just a new twist on an old story, the one about labor being exploited by capital. The difference is that this time the exploitation is done with a smiley face. Everything about this new workplace, from the crazy décor to the change-the-world rhetoric to the hero's journey mythology and the perks that are not really perks—all of these things exist for one reason, which is to drive down the cost of labor so that investors can maximize the return. (p. 121)

HUBSPOT: Lyons makes several pointed criticisms specifically about HubSpot (pp. 42, 97, 103, 113). The founders responded to some of these criticisms in a statement made after the book was published.

After Lyons left (“graduated” in HubSpot speak) and he was close to completing this book, there were news reports about the HubSpot board firing Cranium and Trotsky, and censuring one of the founders. The FBI opened an investigation, but Lyons was unable at that time to find out any clear details, except that the firings related to illegal activities relating to “a book” about the company. One of the company’s self-proclaimed core values is transparency. The firing incident highlighted the selective implementation of that value. Lyons eventually obtained a redacted copy of the FBI report. It appears that some bosses resorted to hacking and extortion in a failed attempt to obtain a pre-release copy of the book.

After publication of this book, the two founders of HubSpot held a press conference to discuss the issues raised by Lyons in the book, mostly skirting the issues. One can find transcripts on the Internet.

The epilogue raises one other issue. Many companies, such as HubSpot, have our data even if we have never given it to them. In the case of HubSpot, they store the data generated by the companies who are HubSpot’s customers. What is to stop them from mining that second-hand data? (p. 255).

There’s an adage in Silicon Valley that people who use online services are not the customers. We’re the product. As far as companies in Silicon Valley are concerned, we exist solely to be packaged up and sold to advertisers. (p. 257)

One motivation for the behaviors Lyons finds objectionable has been a part of the human psyche since the Fall in the Garden of Eden. The Apostle Paul has this to say:

But those who want to be rich fall into temptation and are trapped by many senseless and harmful desires that plunge people into ruin and destruction. For the love of money is a root of all kinds of evil, and in their eagerness to be rich some have wandered away from the faith and pierced themselves with many pains. (1 Tim. 6:9–10, NRSV)

The majority of readers of this review are neither venture capitalists nor tech start-up founders. We may appear to be exempt from all the problems described in the book. A deeper look shows there may be more overlap than we wish to admit. Early in the book Lyons writes:

*Drinking the Kool-Aid* is a phrase everyone in Silicon Valley uses to describe the process by which ordinary people get sucked into an organization and converted into true believers ... Believing that your company is not just about making money, that there is a meaning and a purpose to what you do, that your company has a mission, and that you want to be part of that mission—that is a big prerequisite for working at one of these places. (p. 51)

Those of us who work in academia also tend to think that we are engaged in work that is life- and world-changing (presumably we are). It is important that we periodically measure how well we are accomplishing those goals. Does our work really change lives and make the world a better place, or are we just earning a paycheck? Do we treat our students disrespectfully? Do we look down our noses at staff and other non-academics? Are we in perpetual war with administration? Or, do we truly seek to love and serve all whom we encounter?

*Reviewed by Eric Gossett, Department of Mathematics and Computer Science, Bethel University, St. Paul, MN 55112.*

**IRRESISTIBLE: The Rise of Addictive Technology and the Business of Keeping Us Hooked** by Adam Alter. New York: Penguin Press, 2017. 354 pages. Hardcover; \$27.00. ISBN: 9781594206641.

For over twenty years, I have been exploring rat models of excessive behaviors—animal parallels to what in humans are now called behavioral addictions. At the same time, I have acquired a number of technological devices—computers (desktop and laptop), iPods, iPads, and smartphones (both BlackBerry and iPhone)—but I have not developed much of a technological presence. I use my computers for work and my mobile devices for email, texting family, and keeping my schedule (I do have one app—a local

## Book Reviews

bus scheduler that tells me when my next bus will arrive). I do not tweet, have no access to Netflix, am not on Facebook, do not have a Fitbit, and am not familiar with many of the programs and games that Adam Alter describes in this easy-to-read book.

The topic of this book is timely. Our local paper recently re-ran an editorial (from the *Dallas Morning News*) entitled “Stopping smartphone zombie children,” suggesting that smartphone sales should be banned for children under thirteen. Concern about distracted students in the classroom is leading some instructors to suggest a tech-free zone for their classes. Alter makes the argument that these devices and their daily usage lead to a behavioral addiction that parallels drug addiction. Canada and some American states are in the process of legalizing cannabis and, like alcohol and cigarettes, sales to minors will be prohibited. In the prologue to his book, Alter points out that many tech giant founders restrict or prevent their own children from using these mobile devices. Alter recommends in his last section that early access to this technology should also be limited.

This book explores the addictive nature of the new digital technology broadly defined. After a prologue laying out the main argument, the book divides into three sections. The first section explains what the author means by behavioral addictions: for example, excessive gambling is one of the first recognized behavioral addictions. Alter describes how the new mobile, web-connected presence of smart phones, tablets, and the apps available are leading to harmful and excessive usage of these devices to the exclusion of other activities. In a chapter on the biology of addiction (chapter 3), I came across a reasonably accurate list of researchers working with human and rat models whose work I have followed for most of my professional career.

Part Two of the book follows the introduction, reviewing a set of techniques that increase the addictive nature of behavioral experience. These interrelated ingredients include the need for goals and the nature of the feedback provided by software as one progresses through escalating levels of difficulty. Also included are older techniques such as cliffhangers, used in Dickens’s time to sell newspapers. The section ends with a chapter on the importance of social interaction as a reward.

In the final section, Alter suggests some possible solutions for these behavioral addictions. One suggestion is restricting and structuring access for children, as they seem to be more vulnerable to the negative effects of this technology. He suggests that environmental factors, such as where to put one’s

smartphone (especially at night), might help reinforce good habits. Finally, Alter argues that some of these addicting techniques might be put to good use by increasing learning, for example, in a process of gamification (making learning more of a game).

This is a book written by a secular author for a secular community. Sin is not mentioned in the book, and there are no references to the Book of Proverbs and its concerns about excessive alcohol consumption and sloth. Christians have long had a complex understanding of addiction and this complexity is expanded as the definition of addiction broadens. Is the medical model of addiction sufficient? Is it a failure of willpower? Does addiction emerge out of the structure of our lives, and how does it relate to the notion of sin or the brokenness of creation? What this book highlights well is how the design of the apps and the technology itself make it easy for people to fall into bad habits.

In the Prologue the author writes, “Tech isn’t morally good or bad until it’s wielded by the corporations that fashion it for mass consumption.” An exploration of this awareness, that large corporate interests push these irresistible objects for their own benefit rather than for their consumers’ good, would have been helpful. We talk about government regulation of the financial industry to protect individuals in areas with huge power imbalances, but what is happening in the tech area to reduce the potential harm that can occur? Should there be regulations about email usage by companies, similar to labor laws concerning work hours?

This leads to one suggestion that I was surprised not to see mentioned in the book: the idea of a digital Sabbath, an idea that both Jewish and Christian communities have raised. While people can use digital devices for good, often their use imposes a work burden on the user: unrelenting job-related emails and messages that demand response. Thus, a day-long break without any technology (as part of one’s lifestyle) seems like a good suggestion for Christians to make, in light of the notion of a Sabbath rest as mandated (for our good) in the fourth commandment.

The rapid advance of technology in our society is having profound effects on many aspects of our lives, and it appears that the rate is only increasing. It is not clear to me that all aspects of this advance of technology can be subsumed under an addiction model. As the technology advances, we are engaging in a one-way social experiment with both good and bad outcomes. The advances in technology make it possible for remote doctors to see our medical information and make recommendations for treatment.

We can plan and confirm a complex vacation from the comfort of our home. The job market is changing—many retail jobs are disappearing in favor of online merchants (with driverless delivery coming). I can probably order all the books reviewed in the last year of *PSCF* with only a few clicks of my mouse. Wikipedia and Google searches give me instant access to all the information I need immediately. I can download academic articles from thousands of journals through our library.

Thus, the strength and weakness of this book is that it focuses on one aspect of technology to the exclusion of other important interlinked issues. The ability to use phones and video chats to keep contact with family and friends from far away is generally a positive. The use of a Fitbit device by an obese couch potato may not be harmful, so we must see situations in context. Can these tools be abused by individuals (the topic of this book) and by corporations (not covered in this book)? Certainly, but the real question is, how can we use them wisely? For this, the command of love for God, our neighbor, and ourselves becomes the critical issue: how can we live and love better with the technology?

Reviewed by Roelof Eikelboom, Department of Psychology, Wilfrid Laurier University, Waterloo, ON N2L 3C5.

## Letter Supporting Emergent Transitions

The conceptual framework of using emergent transitions to deal with order from chaos was well done in Scott Bonham's article entitled "Order from Chaos" (*PSCF* 69, no. 3 [2017]: 149-58). I enjoyed reading it and was reminded of Gerald Schroeder's book *The Science of God* (Free Press, 1997). There, Schroeder, who is a physicist and a Hebrew scholar, has an interesting interpretation of the terms used in Genesis 1, evening and morning. Schroeder claims that evening (*erev* in Hebrew) and morning (*boker* in Hebrew) have a secondary meaning as well. According to him, *erev* can stand for chaos and *boker* for order. If so, that dovetails nicely with Bonham's interpretation of the disorder-order transition framework.

Ken Touryan  
ASA Fellow



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Genesis 1:28, NIV – God blessed them and said to them,  
“Be fruitful and increase in number; fill the earth and subdue it.  
Rule over the fish in the sea and the birds in the sky and over  
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