# Book Reviews

## Environment

***LAUDATO SI'*: On Care for Our Common Home** by Pope Francis. Huntington, IN: Our Sunday Visitor Publishing Division, 2015. 176 pages. Paperback; $12.95. ISBN: 9781612783864.

During the summer of 2016, the world's attention was riveted on Rio de Janeiro, Brazil, host of the Olympics. Summer of 2016 also marked a year after the release of Pope Francis's encyclical, *Laudato Si': On Care for Our Common Home*, named after a song of St. Francis of Assisi. This book forced the world to talk about Christian belief and its intersection with poverty and environmental degradation.

The timing of the encyclical was purposeful and effective. It was released at the end of the UN's Millennium Development Goals of 2000–2015 and before the Paris, France, climate talks in December 2015. The Millennium Development Goals were an ambitious attempt to alleviate dire poverty. Most of these goals have not been achieved completely, but important strides have been made. Millions of people gained access to sewage treatment, clean drinking water, health care, and schooling. Humans have benefitted from power plants, medicines, and increased crop yields. However, the goal of achieving environmental sustainability has not been met. Ocean pollution, soil loss, biodiversity loss, and climate change worsened over the same period. In the midst of this dilemma, Pope Francis released *Laudato Si'* and brought the voice of religious authority to the current environmental crisis.

*Laudato Si'* contains an introduction and six chapters (with numbered paragraphs). While an encyclical is a Roman Catholic theological document, this one is addressed to "all people of good will." The first chapter overviews the state of the world, lamenting environmental changes such as water scarcity and pollution woes, and observes that "our home is beginning to look more and more like an immense pile of filth" (p. 19). Francis also depicts a number of social changes such as "rapidification" (the increasing pace of life), social breakdown, waste, and immense gaps between rich and poor. Chapter two covers a Christian theology of stewardship, referring to several biblical passages which show that sin has disrupted human relationships with God, our neighbors, and the earth. However, God's ownership of all of creation and the commandments to "till and keep" the garden (p. 49) mean that humans have a responsibility to care for the earth.

Subsequent chapters relate the human roots of the ecological crisis, ecology and the common good, and a call to action for all. First, Francis describes the downside of rapid technological progress. Technology itself represents creativity and has remedied countless evils (p. 70). Unfortunately, the book states, "we cannot claim to have a sound ethics, a culture and spirituality genuinely capable of setting limits and teaching clear-minded self-restraint" (p. 72). Francis denounces a "technocratic paradigm" based on the "lie that there is an infinite supply of the earth's goods …" (p. 73).

Much of the book is about connections. Environmental problems cannot be studied scientifically without also understanding economic and social factors; this means that we must have "integral ecology." He explains, "We are faced not with two separate crises, one environmental and the other social, but rather one complex crisis which is both social and environmental" (p. 94). To solve these problems, we need internal changes and social changes. It will take a radical shift in mindset and international and national commitments to fight such large-scale problems as climate change and poverty.

Finally, Francis calls for a simpler, less commercial life. "Disinterested concern for others, and the rejection of every form of self-centeredness and self-absorption are essential if we truly wish to care for our brothers and sisters and the natural environment" (p. 136). Throughout the book, Francis invokes a rich contemplative tradition, stating, "Christian spirituality proposes a growth marked by moderation and the capacity to be happy with little" (p. 144).

*Laudato Si'* was released to worldwide acclaim. It built on the tradition of a Christian stewardship ethic developed by others, such as Loren Wilkerson, Calvin B. DeWitt, Francis Schaeffer, Popes John XXIII, Paul VI, John Paul II, and Benedict XVI. Nonetheless, the encyclical was a step forward. Scientists, religious leaders, and environmentalists all praised the work. The Dalai Lama, the Archbishop of Canterbury, and the Conference of Catholic Bishops hailed it as historic. An editor lauded it in the scientific journal *Nature*. There were numerous articles in the mainstream press.

The encyclical is a powerful text. As the head of the Roman Catholic Church, Pope Francis leads a church of 1.2 billion and has an opportunity to change the world. By writing to the whole globe, but speaking from within the Roman Catholic social teaching, Pope Francis represents a prophetic voice for profound

change in the way we view others and nature. The book describes the way humans approach wealth as radically wrong. Some passages sound much like the Sermon on the Mount (Matthew 5–7), with its calls to care for all creation; to honor the weak, poor, and powerless as much as the powerful and rich; and to be joyful and grateful while choosing a slower, less consumptive life. In addition, the encyclical accurately represents the current scientific consensus. Several scientific groups and individuals have made supporting statements, in part because Pope Francis invited scientists to the Vatican and included them in discussions during the writing process. This book also has the capacity to affect international agreements. The timing of its release, before the December 2015 Paris climate talks, was critical in attracting attention from the press and thus encouraging widespread discussion.

In spite of these strengths, there are a number of weaknesses. The encyclical is full of generalizations but gives few specific details. How many species are going extinct? When and where are people most viewed as objects? How, specifically, will we make the radical changes Francis suggests, if individuals are sinful and institutions are driven by short-term gains? Francis makes some suggestions, but they are not well spelled out. Furthermore, the encyclical does not discuss population growth as a contributor to any environmental issues. While this was unsurprising given the Roman Catholic Church's position on birth control, it was a glaring omission. Many of the major criticisms of the encyclical came from those in the fields of politics and economics. For example, the encyclical dismisses cap-and-trade systems, which proved successful with sulfur emissions, but it gives no clear alternatives for economically and politically viable mechanisms to lower carbon emissions.

*Laudato Si'* reminds us that the current state of affairs in which brutal poverty and overconsumption co-occur is damaging to both humans and the rest of creation. The specifics of solutions to the need for both development and environmental protection are left to the international community, as we attempt our next global undertaking with the new Sustainable Development Goals of 2015–2030. By then we will have had three more Olympics, and hopefully they will be held in a world that is more moral, better cared for, and more sustainable. I recommend the book, both to individual readers and to groups that will find the included discussion questions helpful as a guide to conversation.

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## Ethics

**THE END OF SEX AND THE FUTURE OF HUMAN REPRODUCTION** by Henry T. Greely. Cambridge, MA: Harvard University Press, 2016. 381 pages. Hardcover; $35.00. ISBN: 0674728963.

With a title that is sure to catch a reader's eye, this book draws us in to think of a world in which sexual intercourse will no longer serve a role in reproduction. In this book, Stanford University law professor Henry Greely examines a putative world in which sperm and egg cells could be made from skin cells to produce embryos that would be genetically screened before given a chance to develop fully. In his writing, Greely coins the term "easy preimplantation genetic diagnosis" (EPGD) and predicts that this will be a standard tool used in producing offspring in the relatively near future.

Based on our current knowledge of genetics and stem cells, and the rate at which we have acquired such knowledge, Greely outlines what is needed with regard to scientific advancements and predicts that a world as portrayed in the movie *Gattaca* or read about in *Brave New World* is merely twenty to forty years away. He describes a future in which children can be born from parents who never existed, gay and lesbian couples can have biological offspring together, disease-causing mutations could be wiped out in a generation, individuals could have offspring with themselves, and parents could discard embryos based on the lack of desired traits.

In predicting this future world, Greely writes so that the topic is accessible to a broad audience. He begins by giving "a nonscientist guide" to readers so they can understand the scientific foundation that will allow EPGD to become a reality. He then discusses what will be needed by way of scientific advancement to make EPGD an affordable reality. As one digests the advancements that will be needed, one begins to see the benefits and complications of such a world. In the third part of his book, Greely walks the reader through several implications for society of genetically screening embryos in order to select for certain traits.

I find it interesting that the author begins his book by discrediting his authority. He admits that he "last took a biology course at the age of fifteen" and concedes that his book "gives a nonscientist a guide," as he is a lawyer not a scientist.

The first six chapters of the book make an attempt to give the reader an overview of the pertinent science relating to genetically diagnosing embryos. There were only a couple of times I cringed as I read through those early chapters. There were several errors/over-simplifications, and I was disappointed that the author touches only briefly on epigenetics (a mere page and a half). However, the first part of the book is not intended for scientists, and it does provide an interesting example of how someone with little to no scientific background can work toward an understanding of the field. The author does a nice job of explaining scientific concepts in a manner that nonscientists will likely be able to grasp.

Greely provides many examples of scientific advancements in the past and relevant legal cases with regard to human rights. In doing so, Greely gives his audience the tools to begin to wrestle with some of the important questions. Have the scientific and legal communities really examined the trajectory we are on? Do we want to live in a world in which we have parents genetically selecting which offspring should be given a chance at life? How do we educate those without a scientific background so they can make informed decisions when it comes to utilizing genetic diagnosis? What future injustices are we setting up? Who gets to say what traits are allowable, and which ones should be selected against? Can we, and should we, implement regulations of such a technology? Whom do we permit to enforce laws?

Ideally, the book will motivate Christian readers to think about where we want to go with the plausible scientific advances now on the horizon. We need to participate in ongoing discussions pertaining to genetic testing and stem-cell-related advances. However, we need to be aware not only of the subject matter but also of our audience. For example, the author points out that he is unwilling to engage in conversations with people who cite biblical references to argue that utilizing genetics to select embryos and choosing genetic traits for offspring is wrong. Greely clearly states that he is a consequentialist when it comes to ethical dilemmas and expresses that it is "surprisingly difficult" to find religious positions pertaining to EPGD, claiming he could not readily find a central authority figure who addresses the technologies on the horizon. As Christians, this should give us pause. Hopefully, we will contemplate and discuss what role Christians will/should play in answering these questions. Ideally, we can all participate in this discussion in a respectful and informed manner.

Choosing to have a child is a major decision many wrestle with. Imagine now a world in which we have to wrestle with what traits we want that child to have. In *The End of Sex and the Future of Human Reproduction*, Greely calls us to learn as much as we can before this technology fully exists, so that we can be equipped to make informed decisions.

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## Geology

**THE GRAND CANYON, MONUMENT TO AN ANCIENT EARTH: Can Noah's Flood Explain the Grand Canyon?** by Carol Hill, Gregg Davidson, Tim Helble, and Wayne Ranney, eds. Grand Rapids, MI: Kregel Publications, 2016. 240 pages. Hardcover; $26.99. ISBN: 9780825444210.

At last! We now have a scientifically credible, readable book about the Grand Canyon geology geared to nongeologists: *The Grand Canyon, Monument to an Ancient Earth: Can Noah's Flood Explain the Grand Canyon?* The answer given to the question posed by the title is a resounding "NO, IT CAN'T!" Although not stated in so many words, the authors were clearly motivated by a fervent desire to drive "flood geology" into extinction. I join the authors in hoping that they succeed.

This eagerly anticipated book has long been gestating, but the wait has been worth it. The full story behind *The Grand Canyon* was told in the June 2016 issue of *Perspectives on Science and Christian Faith* by Carol Hill, the instigator and driving force behind the book. A Christian geologist who specializes in cave geology and hydrology, Hill is the author of *Cave Minerals* and has published several technical articles on aspects of the Grand Canyon geology. She assembled a first-rate team of eleven contributors, at least eight of whom are Christians. Hill, Stephen Moshier, and Gregg Davidson did the lion's share of the writing, but every one of the eleven wrote at least one chapter and helped to shape the entire manuscript. The team of authors includes three hydrologists, a carbonate sedimentologist, an aqueous geochemist, two paleontologists, a structural geologist, a planetary scientist, a petroleum geologist, and a botanist, thus providing a wide range of professional expertise necessary for a competent discussion of virtually all aspects of the Grand Canyon geology. The contributors represent the American Association of Petroleum Geologists, five major universities (New Mexico, Mississippi, Tulsa, Northern Arizona, and Akron), two Christian colleges (Wheaton and Calvin), and two federal agencies (National Weather Service and

Los Alamos National Laboratory). At least one is also an independent geological consultant.

The authors were joined by photographer Bronze Black and graphic designer Susan Coman, both of whom did superlative work.

*The Grand Canyon* accomplishes many objectives. Readers are treated to a feast of palatable scientific information about the Grand Canyon. Many visitors to the canyon will want to acquire this book if for no other reason than to understand the geology that is exposed in the walls of the canyon as well as the history of the canyon itself. For others, the volume can serve as an elementary geology text. Readers who lack geological training receive a solid education in basic geologic principles that are applicable anywhere. These principles are routinely applied by field geologists around the world in their efforts to reconstruct the history of the rocks which they are investigating. Finally, the writers have provided an avalanche of evidence to refute the pseudo-science of flood geology. These ends have been achieved with clarity, vigor, and precision, but also in an irenic spirit that respects those whose fallacious views are vigorously challenged. One finds no epithets hurled at those who subscribe to flood geology.

This book consists of five parts. Part One sets the stage by providing an overview of the basic principles of flood geology and its relation to the Grand Canyon, along with a review of biblical texts invoked to support flood geology. The beginning section includes a helpful tabular comparison of flood geology and modern geology. Part One also contrasts the time frames of flood geology and modern geology. An outstanding feature is a two-page (pp. 42–43) set of color illustrations that depict the successive steps involved in the historical development of the local geology.

Part Two, a superb presentation in eight chapters on "How Geology Works," provides the meat and potatoes of the book. Here the reader is treated to a sizeable chunk of Geology 101 at its finest. Given that the canyon walls consist predominantly of sandstone, shale, limestone, and conglomerate, Part Two focuses primarily on the nature and formation of sedimentary rocks. Distinctive structures of these rocks, such as ripple marks, mud cracks, and cross bedding, are discussed. The reader is shown how to apply modern sedimentary processes and features to the interpretation of ancient sedimentary rocks. The text is accompanied by gorgeous photographs of the features under discussion, along with clear maps and diagrams, all in color. The authors also explain how to determine the relative time relationships among spatially associated rock bodies by means of the principles of superposition, cross-cutting relationships, original horizontality, lateral continuity, and faunal succession. The geologic timescale is described. The determination and reliability of the ages of (mostly) igneous rocks are due to the various methods of radiometric dating.

An extremely important section in Part Two is chapter 10 (Missing Time), which deals with gaps in the rock record, gaps that flood geology tends to gloss over in light of its stress on the catastrophic activity of a yearlong deluge. The authors describe the characteristics of unconformities, which are discontinuities in a pile of sedimentary rocks that have resulted from temporary nondeposition of sediment, erosion of previously deposited sediment, changes in the rate of sedimentation, changes in the composition of sediment being deposited, or combinations of those factors. The reader learns how to recognize the presence of unconformities features in rock exposures. Adherents of flood geology and young earth creationists contend that the sediment layers were deposited almost uninterruptedly during the deluge, such that virtually the entire stack of sediments in the Grand Canyon remained essentially unconsolidated throughout the period of deposition. These contentions are readily refuted. This chapter is enhanced by photographs of unconformities and an impressive table (p. 100) that identifies and describes nineteen unconformities that have been detected in the walls of the Grand Canyon. Each one of the erosional episodes is indicated by the presence of an unconformity affected sedimentary material, which had already been consolidated into rock before subsequent layers of sediment were deposited.

Part Two concludes with a summary of the theory of plate tectonics and a lesson on how to extract historical information from the exceedingly common fractures, faults, and folds that are indicative of episodes of rock deformation.

Part Three turns to the study of fossil remains of the Grand Canyon, addressed in three chapters: fossil animals (fauna) of the Grand Canyon and the Grand Staircase to the north; fossil plants (flora) of the region; and trace fossils, which are features found on the surfaces of sedimentary rock layers, such as burrows and footprints, trails, and tail drag marks. Part Three includes excellent photographs of *in situ* fossils. Two informative tables summarize the characteristic animal and plant fossils that occur in the rock formations of each time period of the geologic column from Proterozoic (Early Proterozoic) to Cenozoic (Neogene). Stress is also laid on the significance of the animal and plant fossils that are not

found in the Grand Canyon rocks, fossils that one might reasonably predict should be there if flood geology were valid.

An important aspect of Part Three is a discussion that debunks the claim made by some flood geology advocates that the rocks must be very recent because modern pollen has been found at the Grand Canyon. It is pointed out that any pollen found in the Grand Canyon was not extracted from the rocks themselves but derived solely from local plants currently growing in the canyon.

Part Four discusses the pros and cons of various processes by which the canyon may have been excavated and considers the age of the canyon. This section includes a brief look at modern life forms currently living in the canyon and a discussion of the implications of extinct animal fossils found in caves within the canyon for theories of canyon formation.

Although the entire text incorporates a running refutation of aspects of flood geology in the light of modern geological findings, the concluding Part Five lays out an overview of the geological history of the Grand Canyon area by summarizing the evidence drawn from the rocks exposed in the canyon. Here the reader is escorted on a step-by-step, river-to-rim, upward journey from the crystalline rocks exposed at the bottom of the canyon to the Kaibab Formation that occurs at the rim. The final chapter drives home the point that the totality of geological evidence found in the Grand Canyon unequivocally supports a complex, vastly ancient history involving the long-continued operation of depositional and erosional processes in shallow marine, deltaic, fluvial (river), lacustrine (lake), and eolian environments. The evidence bears no relation to Noah's or any other great flood.

The text of *The Grand Canyon* is a nutritious and tasty intellectual feast, but the to-die-for dessert is provided by spectacular color illustrations that greatly enhance the impact of the book. Approximately 250 maps, idealized cross sections, block diagrams, tables, and gorgeous photographs of the canyon taken from every perspective imaginable accompany the text. A compilation of references and general reading for further enlightenment rounds out the book.

Every pastor, every theologian and seminary student, every science professor and science student in a Christian college, every school board member, principal, science teacher, student, and parent connected with a Christian school, and every parent who homeschools a child should read this book cover to cover. They should study the diagrams, tables, and photographs. After reading the book, they should place it on the coffee table as a permanent fixture. Then, as soon as possible, they should visit the Grand Canyon with their families and look for features explained in the book for themselves.

Congratulations are due to Kregel Publications for publishing this magnificent book and offering it at such a reasonable price.

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## Origins

**DARWIN IN THE TWENTY-FIRST CENTURY: Nature, Humanity, and God** by Phillip R. Sloan, Gerald McKenny, and Kathleen Eggleson, eds. Notre Dame, IN: University of Notre Dame Press, 2015. xviii+461 pages. Paperback; $49.00. ISBN: 0268041474.

The title under review derives from one of the major academic conferences commemorating the 150th anniversary of the publication of Darwin's *On the Origin of Species* (November 24, 1859) and the bicentennial of Darwin's birth on February 12, 1809. Cosponsored by the John J. Reilly Center for Science, Technology, and Values at Notre Dame, and the Science, Theology, and the Ontological Quest project within the Vatican Pontifical Council for Culture, it brought together well over twenty interdisciplinarians to explore the heritage of evolutionary theory and its implications for human, social, and religious concerns in November 2009. The volume is intended both as a product of the events that transpired and as an advancement toward maturity of the field in the twenty-first century.

The focus of this volume is on present and future developments within evolutionary science and its impact on the humanities, rather than a strict historical commemoration of achievements. While based on the conference at Notre Dame, it does not include all the papers presented there, and has a distinctly Roman Catholic orientation (as might be surmised). The division of this collection of essays into the three areas of nature, humanity, and God reflects not only the conference itself, but also the major areas that evolutionary theory impacts: natural philosophy, humanity's place in the cosmos, evolutionary ethics, and the relation between scientific and theological explanations of human origins. What follows are selective highlights that seem particularly important.

A particularly strong chapter within the first section on nature is Scott F. Gilbert's "Evolution

through Developmental Change: How Alterations in Development Cause Evolutionary Changes in Anatomy." Therein, Gilbert relates how the Modern Synthesis explains natural selection at both the species and populations levels exceptionally well. However, this situation changed in the mid-1970s when two major advances contributed to a more complex evolutionary theory that could explain both micro- and macroevolution, namely DNA sequencing and developmental genetics (p. 38). Gilbert claims that the classical modes of evolutionary developmental biology (i.e., heterotypy, heterochrony, heterometry, and heterotopy) supplement and extend the Modern Synthesis, but symbiotic and epigenetic contributions could be more revolutionary (p. 53).

In chapter five, "Accident, Adaptation, and Teleology in Aristotle and Darwinism," David J. Depew contrasts how Aristotle perceived teleology, as consisting of a duality of both natural and intentional aspects, with how the Victorian Englishman restricted teleology to merely its intentional aspect. Depew contends that biological evolution exhibits natural teleology, but not intentional teleology (p. 127).

Gennaro Auletta, Ivan Colagè, and Pablo D'Ambrosio coauthor the sixth chapter, "The Game of Life Implies Both Teleonomy and Teleology," arguing that both teleonomy and teleology are valid explanatory mechanisms in biology. In the essay, they make a notable distinction between teleonomy, which may be ascribed to all biological processes that imply forms of co-adaptation but not built-in goals, and teleology, which concerns processes that have goals which are built-in and necessarily nested in the constitution of an organism (p. 146).

Chapter eight, by Robert J. Richards, is entitled "Darwin's Evolutionary Ethics: The Empirical and Normative Justifications," and argues that Darwin employed a community-type selection to explain those human social behaviors and instincts that were costly to self but were advantageous to kin and the wider community (p. 189). To this, it is claimed, Darwin added that the fundamental altruistic impulse is augmented by two processes: praise/blame, and the promise of reciprocity (p. 190).

In "Questioning the Zoological Gaze: Darwinian Epistemology and Anthropology," Philip R. Sloan develops a philosophical anthropology that returns to the phenomenological tradition, and draws upon the tradition of continental philosophical anthropology. More specifically, Sloan argues that we must break with a line in philosophical reflection predominant within Anglo-Americans that assumes reflections on human beings must necessarily begin with the natural sciences, and avers instead that it is apropos to begin from the experience of ourselves as existentially existent and self-reflective beings (p. 250).

Chapter eleven entitled "Evolution and the Catholic Faith," written by John O'Callaghan, begins the section on God. Frankly, this essay is out of place when viewed from the perspective of the rest of the volume, and the transition is unnecessarily abrupt. O'Callaghan posits a very conservative position within the Roman Catholic tradition. The volume would have been better positioned by placing William E. Carroll's chapter twelve, "After Darwin, Aquinas: A Universe Created and Evolving," first in this section. Carroll states that the challenges posed by evolutionary biology do not so much demand a new theism, but rather a re-appropriation of insights gleaned from Aquinas, especially regarding the doctrines of creation, God's transcendence, and providence. Interestingly, Carroll stipulates that we have no need of positing a kenotic theology, as many do in the contemporary environment, in contradistinction to what a later author in the book does (Życiński, chapter thirteen). I take issue with Carroll's position on this, and posit instead that rather than seeing divine kenosis as a self-limitation, we should view it as a divine self-offering (which *kenou* connotes in the Greek). Viewed as such, one can picture kenosis as a divine pouring of self into the very constituent matter that composed the early, chaotic universe.

The title closes with two contributions, looking at past and future prospects. In "Imagining a World without Darwin," Peter J. Bowler sets up a counterfactual scenario that reconstructs history as if Darwin's theory had not been proposed in 1859. He contends that an evolutionary movement would most likely still have emerged in the 1860s, but exploiting a non-Darwinian mechanism, and suggests that although natural selection would have eventually been discovered, the theory would not have been a major component of the debate until early in the twentieth century (pp. 385, 388). Finally, in the concluding chapter entitled "What Future for Darwinism?," Jean Gayon proposes that Gould's (2002) distinction between extension, replacement, and expansion, provides a useful basis from which to gauge the future of Darwinism. "Expansion" means that the same principles remain central to the theory, but they have been reformulated in a way to give a truly different aspect to the entire edifice. Gayon contends that we observe this "expansion" of a theoretical framework in the generalization of the concept of "descent with modification" to infra-organismic levels, and the addition of new principles in the source of variation—lateral gene transfer and symbiosis (p. 413).

All in all, this title is an adequate exploration of the heritage of evolutionary theory and its implications for human, social, and religious concerns from a Roman Catholic perspective. The essays potently assess the continuing relevance of Darwin's work from the perspectives of biological science, history, philosophy, and theology. I recommend this book for those who are involved in the ever-proceeding science and theology dialogue.

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**HOW I CHANGED MY MIND ABOUT EVOLUTION: Evangelicals Reflect on Faith and Science** by Kathryn Applegate and J. B. Stump, eds. Downers Grove, IL: InterVarsity Press, 2016. 196 pages. Paperback; $16.00. ISBN: 0830852905.

Stories are powerful. When we tell them and when we hear them, we learn about ourselves and how to make sense of the world around us. *How I Changed My Mind About Evolution: Evangelicals Reflect on Faith and Science* is a collection of twenty-five personal essays written by well-respected scientists, theologians, and pastors describing the story of their journeys toward accepting the theory of evolution as the best explanation for the origins of life, and how they reconciled this belief with their Christian faith while remaining faithful to scripture. The short essays in this collection are indeed powerful. They are honest and contain thoughtful reflections in and through which we can see ourselves, the world around us, and our own journeys. As I read the essays, what stood out to me most were the common themes that emerged. These themes, evident in most of the essays, can serve as lessons or guides for readers on their own journeys.

Not surprisingly, most authors begin their essay with a description of the conflict they experienced between science and faith. Sometimes the conflict was occasioned by their church or denomination; sometimes the conflict existed because of assumptions they made as they learned Bible stories throughout childhood. The authors often described their journey to reconcile or integrate faith and science around the issue of evolution as "risky," but they commonly identified their love of science and learning, curiosity about the world, and a desire for wholeness—for engaging God with their heart and mind—as motivating factors for seeking reconciliation and integration. The integrative work described by the authors was not easy. They read books, earned doctoral degrees, studied scripture, and prayed. It took time and energy. Significantly, most authors expressed their reliance on evidence, both accurate scientific evidence and biblical interpretation done with care and thoughtfulness. Their journeys reflect postures of critical thinking, asking difficult questions, and not settling for simplistic answers. They tolerated neither bad science nor bad hermeneutics, and they maintained the centrality of the authority of the Bible as they worked. Over and over, the authors articulate the need for humility and openness when examining both the scientific evidence and the relevant scripture passages. They were open to the possibility that they might, in the light of evidence, need to readjust their beliefs and assumptions. While many expressed this journey as one they felt might be a risk, they also expressed confidence in God's faithfulness in guiding them to the truth. The assurance that "all truth is God's truth" echoed throughout the essays found in this book.

Unfortunately, many authors attest to experiences of hurt and disillusionment in the church when they began to examine the scientific evidence and carefully consider the biblical text. When searching beyond the simple answers many of their churches gave, they found the evidence in support of evolutionary theory overwhelmingly convincing. Having been presented with a false choice by their church or denomination—young earth creationism and faith or evolution and atheism—many had the sense that the church had let them down, even lied to them. In the light of their own hurt and disillusionment, several authors express concern for their students, young people, and children of the church today. They observe that young Christians are too often presented with the same false choice. When these young Christians see the scientific evidence in support of evolutionary theory, they, too, often experience disillusionment and hurt. Unfortunately, not all these young Christians will patiently work to reconcile faith and science. When they believe that the church has been less than honest with them, there is a real risk that they will abandon their faith. Jeff Hardin and Stephen Ashley Blake specifically address the responsibility of scientists who are Christians to act as bridges between science and faith for church communities, in order to help avoid this kind of hurt and disillusionment.

Thankfully, the authors of this book conclude that abandonment of their faith is not the only or the best response. Each author testifies that, in the end, they found no conflict between science and faith. When properly understood, the "two books"—science and faith—written by the same author, are not only compatible but also harmonious, and no one should be told they must choose between the two. Rather than finding that they had to abandon their faith at the end of their journeys, the authors found harmony an

deepening of their faith. The authors testify over and over to an increased sense of wonder, awe, mystery, and delight in God's creation and were compelled to respond with worship.

Consistent with the emphasis on intellectual humility, the authors do not suggest that they have the issues all solved. They readily admit to having ongoing questions for which they are seeking answers. But they are not afraid of their questions, and in their confidence, they encourage us, as readers, to approach our own questions without fear.

Finally, the authors describe the critical role of mentors, models, and communities in creating safe, nonjudgmental spaces in which they had permission to ask hard questions, disagree, dialogue, and listen.

You will not find the evidence on which the authors depended along their journeys in this book, but you will find references to authors and books in which you can find that evidence for your own journey. In this book, you will find honest stories with which you might identify. You will find safe spaces to ask your questions, and you will be introduced to members of a community working to create those safe spaces. I think that anyone curious about embarking on their own journey to reconcile faith and science, as well as those well along that road, will enjoy and find encouragement in this collection of stories. The essays are short, easy to read, well written, and compelling. I will recommend this book to students who are struggling to reconcile their faith and evolutionary theory as an assurance that it can be done and done well.

This is the first book in a new series, BioLogos Books on Science and Christianity, in a partnership between BioLogos and IVP Academic. I look forward to more.

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## Psychology

**THE BRAIN'S WAY OF HEALING: Remarkable Discoveries and Recoveries from the Frontiers of Neuroplasticity** by Norman Doidge, MD. New York: Viking, 2015. 409 pages. Paperback; $19.95. ISBN: 9780670025503.

Norman Doidge's first book, *The Brain That Changes Itself* (2007), profiled case studies of neurologically impaired patients who were desperate for a cure. It became a *New York Times* bestseller that subsequently spun off as a successful educational film. The book's overarching theme explores the concept of brain plasticity—the notion that the mammalian brain is not fixed but can change both structurally and functionally well into adulthood. While Doidge's first book introduced the reader to the major scientists who challenged previous dogma insisting that the adult brain could not alter its functional characteristics, his new book, *The Brain's Way of Healing*, emphasizes the application of neuroplasticity to treating complex neurological illnesses with behavioral treatments.

*The Brain's Way of Healing* includes eight chapters featuring compelling stories of people who, through no fault of their own, live with severe neurological impairments. Their ailments include Parkinson's disease, traumatic brain injury, stroke, autism, multiple sclerosis, attention deficit disorder, among others. Each had been told that they would never get better from their illness.

In *The Brain's Way of Healing*, Doidge attempts to categorize different types of neuroplastic healing that can occur and examines the various ways the brain can adapt to overcome injury or disease. As a neuro-clinician who specializes in psychiatry and psychoanalysis, he proposes his own stages for neuroplastic changes. However, traditional neuroscientists who place more emphasis on systematic experimental methodologies might feel that Doidge's description of neuroplastic changes are too broad and lack the precision characteristic of scientific theorizing. For example, Doidge's use of the phrase the "brain is rewiring itself" appears to include instances of axonal or dendritic sprouting, creation of new brain cells through neurogenesis, processes involving the repairing of damaged tissue, as well as the altering of neuropathways that circumvent previously used circuitry. These different types of brain-altering processes could be more clearly nuanced, particularly when Doidge addresses the efficacy of the behavioral treatments described in the case studies.

Doidge believes that neuroplastic healing in the brain occurs by using different forms of energy such as light, sound, touch (including movement), and electricity. These forms of energy can be used to modify patterns of the brain's electrical signals, which, according to Doidge, lead to structural changes in the brain. For example, sensory cortical real estate initially dedicated to one body part, such as the hand, is now taken over by abutting cortical areas in the face after a limb amputation. Research by Michael Merzenich revealed that the lack of sensory input to the brain from an amputated finger resulted in an altered cortical brain map. Doidge explained the change in terms of energy—in this case electrical signaling—that had ceased. The cortical areas

responsible for the motor pathways from the intact fingers increased in size, eventually taking over the brain area that previously controlled the missing finger.

Doidge clearly shows his biases against contemporary medicine. He believes clinicians have overlooked the body to treat the brain. He also opposes Western medicine's emphasis on using drugs to cure. Doidge prefers behavioral therapies, such as movement or applying some form of energy (e.g., light, sound) to the body as a way of treating the brain. While he does acknowledge the presence of bidirectional communication feedback loops between the brain and the peripheral nervous system, it was disappointing that he failed to mention anything from the new scholarship on the embodied mind. Instead, he promulgates a spurious dichotomy between Western and Eastern views of medicine by making them appear more diametrically opposed than they actually are.

*The Brain's Way of Healing* reads like a science fiction novel. It captures readers with a riveting narrative style. For example, the book's first chapter describes the case study of a registered nurse who suffered from debilitating chronic pain after she injured her back. Surgeons told her that there was too much damage for surgery to be of any help. She was placed on a steady regimen of opioid medicines to control the pain; even strong painkillers like morphine were not effective. After a decade spent at home and feeling depressed and suicidal, she sought an alternative therapy that involved visualizing the shrinking of brain areas responsible for processing pain. The woman testified that her pain had subsided dramatically within four weeks and eventually disappeared completely, allowing her to return to her normal way of life. Doidge's explanation is that "competitive plasticity" occurred in the brain, disabling the posterior parietal lobe from processing the pain signals as it had in the past.

In this case study, as with the others described in the book, one questions the quality of the evidence Doidge uses to arrive at the conclusion that a particular neuroplastic therapy was responsible for the prophylactic outcomes. Much of the evidence presented is anecdotal and appears to be uncritically accepted as truth. In addition, there is a reliance on retrospective memories without a cautionary eye toward the possible influence of hindsight biases that could alter the patient's narrative. Also, there was no mention of any brain imaging data (i.e., fMRI, PET) that could elucidate or confirm that specific brain areas are supposedly now rewired. Doidge does acknowledge the possibility of a placebo effect causing the pain reduction. However, it is quickly ruled out by his reasoning that the duration of the relief far surpasses what may be credited to only placebo.

It is likely that *PSCF* readers will be disappointed by the paucity of data used to explain how the therapies work. While attempting to understand how a particular therapy might cause brain-based changes through mechanisms of neuroplasticity, Doidge resorts to less credible "evidence" as a substitute for genuine scientific methods. Although *The Brain's Way of Healing* is a stimulating read, it raises more questions than it answers.

From a Christian perspective, *PSCF* readers will note Doidge's nonreductionist approach to clinical neuroscience. The author describes the individuals who comprise the neurologically based case studies from a holistic perspective involving mind, body, and soul. Although Doidge does not attempt to integrate religious constructs with scientific findings explicitly, his writing is infused with implicit musings that could resonate with spiritual and religious communities. For example, personhood is viewed more broadly than the sum of one's intellect (mind) and body. There is an appreciation for the mystery and wonder that is present in all people, whether their brains have been ravaged by disease or are fully intact. In many respects, *The Brain's Way of Healing* is reminiscent of the writings by the late neurologist Oliver Sacks, who was known for his ability to write about the existential qualities of his former patients with a humanizing grace. Sacks never seems to focus on the brokenness of humanity; he unabashedly emphasizes the growth potential of all people, regardless of their challenges. Doidge's writing reflects this same uplifting quality that provides hope for those whom traditional medicine has not been able to help.

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## Social Science

**UNDERSTANDING GENDER DYSPHORIA: Navigating Transgender Issues in a Changing Culture** by Mark A. Yarhouse. Downers Grove, IL: InterVarsity Press, 2015. 191 pages. Paperback; $20.00. ISBN: 9780830828593.

Transgender, gender fluid, gender queer, transsexual: Almost weekly, it seems, new words emerge to describe and express a diversity of gender experience and expression well beyond the traditional female/male, woman/man binaries. Are those who do not fit the traditional gender binaries suffering from a mental disorder, or are they expressing

perversity or something to celebrate? Struggles and arguments on this question reverberate throughout modern society. In the midst, Christians often stand bewildered, wondering how to respond. Knee jerk, oversimplified reactions abound in both the secular and Christian media, and those who experience gender dysphoria can be deeply hurt in the crossfire.

While there are plenty of excellent (and not-so-excellent) books and other resources to help Christians think through issues of sexuality and sexual orientation, gender dysphoria has received far less attention. In *Understanding Gender Dysphoria: Navigating Transgender Issues in a Changing Culture*, professor, clinical psychologist, and evangelical Christian Mark Yarhouse has provided a much-needed, thoughtful, serviceable resource for Christian families, churches, and communities. In the midst of a cacophony of competing perspectives, his voice stands out as compassionate, wise, balanced, and sane. Yarhouse acknowledges the complexity of people's experiences of gender dysphoria, accurately outlines the current state of the research, and situates both in the context of evangelical Christian theology. What he does not do is take seriously the possibility that traditional conservative evangelical theology might have something to learn from those who challenge the reality and appropriateness of a binary view of gender. However, by refusing that challenge he has created a "safe space" for evangelical Christians within which he presents a different challenge: To get comfortable with the complexity and lack of knowledge around gender dysphoria and to focus on humility, listening, and being in relationship with those who struggle with dysphoria.

Yarhouse begins with two chapters introducing readers to the complexity of sex and gender and an outline of evangelical Christian perspectives on these topics. The next three chapters summarize the scientific and clinical dimensions of gender dysphoria, from potential causes to prevalence to prevention and treatment. In the final two chapters, he provides concrete suggestions for Christian individuals and institutions as they wonder how to respond. Throughout, he emphasizes the complexity of gender diversity, the many as-yet-unanswered questions about cause, and the importance of recognizing that people do not choose to be gender dysphoric. Stories of real people dealing with gender dysphoria in the context of their Christian faith and faith communities put an important face on the issue, and give life to the theories. The writing is conversational but also academic in style. The book could have used more careful copy-editing to catch errors and awkward sentences; however, the overall points get through despite these distractions. Some readers may struggle with the technical language in the three chapters on cause, prevalence, and treatment; however, each chapter has a concluding section that summarizes the main points in a more accessible manner.

I have followed Yarhouse's work for many years, and find this to be one of his most nuanced. While continuing to hold to the traditional evangelical perspective that God's intention for creation is a clear female-male binary, he gently scolds the many Christian communities who send a message of exclusion and sinfulness to those who are dealing with a complex issue that has no simple solutions. Particularly helpful is his identification of three different lenses through which people consider gender issues—integrity, disability, and diversity—and showing how each has value and limitations for the Christian. He also clearly lays out how to use these lenses when dealing with real people in their real struggles. His clinical experience, wisdom, and compassion shine through as a guide and a model for humility, grace, and relationality.

One of the most moving and powerful moments in this book, for me, is a quotation from a friend of Yarhouse's who deals with gender dysphoria. It captures the spirit of the book well. She says,

> This central paradox in Christianity allows us to love our own brokenness precisely because it is through that brokenness that we image the broken body of our God—and the highest expression of divine love … It's also always struck me as particularly fitting and beautiful that when Christ is resurrected, his body is not returned to a state of perfection … but rather it still bears the marks of his suffering and death—and indeed that it is precisely through these marks that he is known by Thomas. (pp. 59–60)

Some readers may be disappointed that Yarhouse does not provide clear, strong answers about what is "right" and "wrong" about expressions of gender diversity and various approaches to its treatment. His challenge to get comfortable with the messiness may be strong meat to some. Others may be disappointed at his unwillingness to consider that traditional evangelical Christian theology around sex and gender might well need some revision in the light of current knowledge and understanding. He outright rejects any consideration of transgender experience as something to celebrate and learn from. His dismissive attitude toward those who hold what he calls the "strong form" of the diversity lens, those who suggest that we need to deconstruct and challenge the sex/gender binary, seems oddly closed-minded given the open tone of the rest of the book. There is some excellent, thoughtful work by deeply committed Christian scholars that actively engages the

challenge to the sex/gender binary (e.g., Megan DeFranza's *Sex Difference in Christian Theology*, and work by Margaret Farley and Lise Sowle Cahill). That Yarhouse does not even acknowledge this work, yet does choose to cite uncritically the divisive and controversial work of Paul McHugh, is troubling, and also puzzling, given that he acknowledges throughout the book that a rigid adherence to stereotypical expressions of femininity and masculinity is a source of great pain for the gender dysphoric person, something that Christians need to recognize and relinquish.

Given the complexity of gender dysphoria and the rapid changes in knowledge, theories, and recommendations from mental health professional organizations, all of which Yarhouse acknowledges, I expect and hope that this book will be released in a second edition in roughly the next five years.

In writing to Christians about sexuality and gender, it is impossible to please everyone. Yet Yarhouse has produced a book that should be of service to virtually all who are interested, personally or theoretically, in this topic, and are not already foreclosed. I know that I will be recommending it widely.

*Reviewed by Heather Looy, The King's University, Edmonton, AB T6B 2H3.*

## TECHNOLOGY

**PHILOSOPHY OF TECHNOLOGY: An Introduction for Technology and Business Students** by Maarten J. Verkerk, Jan Hoogland, Jan van der Stoep, and Marc J. de Vries. New York: Routledge, 2015. 336 pages, index. Paperback; $59.95. ISBN: 9781138904392.

This is probably the best book on the philosophy of technology that I have yet come across—best, not only for technology and business students, but also for researchers and reflective practitioners. It is inspired by a Christian philosophy but should be more than acceptable to non-Christians of all kinds, because of the wide range of technology issues it covers well.

This book provides both breadth and depth in a way that is readable and readily understandable. It provides considerable understanding of many issues and challenges that we face today, clearly explained. It is informative and comprehensive, merging philosophical thinking with practical technology development and with responsibility in society, and provides useful insight for communities of practice concerned with each. This broad view encourages philosophers and developers to be aware of responsibility, developers and media pundits to think philosophically, and philosophers and politicians to remember the realities of development.

It is able to achieve this by basing its discussion of technology on a radically different way of understanding things, which brings theory and practice together and takes meaningfulness seriously. Hence, the book helpfully addresses the issues that most deeply trouble us. This is rooted in a little-known philosophy that has Christian (Calvinistic) roots, that of Herman Dooyeweerd. It seems that each chapter is inspired by a different insight found in Dooyeweerd's thought, but seldom is Dooyeweerd thrust on the reader.

*Philosophy of Technology* has three parts. Part I, entitled Thinking and Making, has two chapters, which look at the phenomenon of technology from a philosophical perspective. Technology is not just something that happens but has a special meaning or role in the world, which is to disclose deeper meaningfulness for the good of the world.

Part II, entitled Making and Designing, has six chapters, each of which discusses a different aspect of design and development of technology. Chapter 3 discusses complexity that developers face; chapter 4, how technology artifacts should embody diversity in a way that coheres; chapter 5, the function and structure of artifacts; chapter 6, knowledge and the role of the engineer; chapter 7, methodology for development and design; and chapter 8, ensuring that technology does not dehumanize. These chapters will not teach us the details of, for example, computer programming, but rather they provide a perspective, a wisdom, with which computer programmers might operate.

Part III, entitled Designing and Thinking, has six chapters, which discuss technology in the world. Chapter 9 shows how technology is not just a technical but a social activity. Chapter 10 portrays pessimism and optimism about technology: will it lead to destruction and enslavement or open up bright futures? Chapter 11 discusses globalization and cultures, specifically the role technology plays in these. Chapter 12 discusses the cyborg possibility, namely, humans augmented with technology. Chapter 13 discusses responsibilities surrounding technology. The final chapter, 14, discusses expectations for the future, the "secular sacred" and the limits of technology.

The book thus covers not only the two streams of philosophy of technology mentioned by Carl Mitcham,

those concerned with "humanities" and "technology in itself," but also the philosophy of technology development.

The principles and issues each chapter covers are given flesh with copious helpful examples, and four case studies are included, showing in detail how the principles in several chapters are worked out, in nanotechnology, factory design, military networks, and health care. With each chapter there is a helpful portrait of a thinker who has explored some issues relevant to the chapter, ranging from philosopher Martin Heidegger for chapter 2 on the meaning of technology, and Christian ethicist Egbert Schuurman on responsibility in chapter 13, to Herbert Simon for chapter 6 and Langdon Winner for chapter 9.

I find that each chapter can be read almost independently of the others, and this is a great help to those who like delving into a book in random order. Each chapter is inspired by one portion of Dooyeweerd's philosophy: for example, chapter 2 is inspired by Dooyeweerd's giving primacy of meaning; chapter 4, by Dooyeweerd's approach to diversity; chapter 13, by Dooyeweerd's view that normativity (good, bad) is not to be bolted on but is intrinsic to the very fabric of reality; and chapter 14, by the importance of faith.

There are, perhaps, four limitations to this book. One is that, as a translation of a Dutch work that appeared in 2007, its examples come from more than ten years ago and sometimes long before that. I found no mention of Twitter, Facebook, tablets, or computer games, and the way these are shaping people's lives today. However, for two reasons this might not matter. First, the principles and issues discussed are carefully developed to apply to today's situation, and probably tomorrow's too; for example, responsibility will never become obsolete. Second, readers might like to take the challenge of applying its principles to today's technology at several levels, either as an undergraduate exercise, as PhD research, or even as a longer-term post-doctoral research program, and, of course, to practical planning for life with technology.

The second limitation is that the text tends to hide the philosopher who seems to have inspired it (Dooyeweerd), rather than explicitly referencing his thought. The discussion of meaning in chapter 2 references Heidegger and Dilthey but actually goes beyond both by using some of Dooyeweerd's thought, though it does not name him. On the other hand, mentioning Dooyeweerd in every chapter would sound too much like adulation, so perhaps the authors have struck the right balance.

More importantly, third, the work does not differentiate sufficiently between technology in general and information/communication technology (ICT) in particular. The focus is on the formative activity of shaping that lies at the root of all technology, whereas what gives ICT special importance today is the lingual activity of writing and reading, of signifying and interpreting, of information storage and selection rather than of construction. To cover this, however, would require a whole new book, and not just an extra chapter or two in this work. Perhaps that should be the authors' next project, especially if they can achieve the same breadth, depth, readability, winsomeness, and wisdom.

The fourth limitation is the book's scope. Though the work imports thought from a host of thinkers to help support and build up its view of technology, it provides little help to those who want to export ideas to those thinkers and engage critically in their discourses. By importing, it demonstrates that the Dooyeweerdian/Christian foundation on which its view is based is highly relevant to mainstream thought. But some might wish to explore exporting: how Dooyeweerdian thought can affirm, critique, and enrich the thought of Heidegger, Simon, Latour, and others. However, exporting was not its aim, so this limitation cannot be seen as a criticism. Other books will need to be written that export Dooyeweerdian or Christian thinking to engage with and enrich mainstream thought.

The book's aim is to help us understand the phenomenon that is technology, in a way that combines philosophical reflection and sound theory with practical insight. In doing this, it functions extremely well in a readable, interesting, and informative way. It provides material that students can take further. It is inspired by a Christian philosophy, but should be of equal interest to Christians and non-Christians alike; indeed, my experience is that a Dooyeweerdian foundation, as is used in this work, seems to be attractive to non-Christians more than to Christians, because it provides a way to tackle the diversity and complexity of everyday experience, and it recognizes the faith aspect alongside, rather than above or below, other more "profane" aspects of life.

At the end of his Foreword, Carl Mitcham writes,

> In most cases, books are honoured by the writing of forewords. In the present instance, however, given the special achievements of this book, I am equally if not more honoured by having been invited to write.

This shows the quality of this work.

*Reviewed by Andrew Basden, University of Salford, Salford, UK, M5 4WT.*

**RECLAIMING CONVERSATION: The Power of Talk in a Digital Age** by Sherry Turkle. New York: Penguin Press, 2015. 448 pages. Hardcover; $27.95. ISBN: 9781594205552.

Everyone is addicted to their phone, but no one is quite sure what to do about it. In *Reclaiming Conversation*, Sherry Turkle continues what she calls her path of repentance from excitedly championing new technology, such as the internet and social networking, toward a more reluctant position, now expressing worry about some of the negative effects that unfettered technology adoption can bring. Following her prior work, *Alone Together*, which began a broad conversation on our relationship with technology, *Reclaiming Conversation* looks specifically at the ways we communicate through technology and how an overreliance on texting, email, and social networking can impoverish our relationships, the public sphere, and even our own sense of self.

This book is not so much about bashing or blaming technology (there is a cottage industry of such books), but a plea for recognizing the importance of conversation to human life. As an outline for the book, Turkle uses Thoreau's metaphor of the three chairs in his cabin, "one for solitude, two for friendships, and three for society" (p. 10). Under solitude she discusses our inability to be alone with our thoughts without pulling out our phones to consume media. Turkle argues that "one of the benefits of solitude is an increased capacity for self-reflection" (p. 79), which, in turn, leads to more empathy toward others. She then shows how this underdeveloped empathy affects family, friendships, and romance (two chairs), and education, work, and politics (three chairs).

In each chapter, Turkle brings together recent sociological studies as well as her own interviews to show how dependence on technologically mediated communication impoverishes conversation over time. Though I personally prefer footnotes to Turkle's style of avoiding annotations in the main text and offloading all references to the end, the book is well documented and the collection of research is valuable for anyone working in this area. Another strength of Turkle's work is that she takes the time to show how complex these movements can be. For example, families for whom disagreements tend to escalate into screaming and yelling might initially find it helpful to move their disagreements to text or email. On those media, one is able to edit one's emotions and think before writing something one might regret. However, while this initially helps, over time individuals begin to edit themselves in all kinds of situations to the point where they feel less able to communicate openly and freely in person. Many people no longer want their friends to drop by unexpectedly, and younger generations find themselves "averse … to talking on the phone" (p. 148) because the fluidity and unpredictability of live conversation is foreign and frightening. At the same time, people feel trapped by the permanent record of all those texts and emails, feeling unable to move forward. The constant curation of the online self eventually becomes a heavy, unmanageable burden from which many never escape.

Turkle also rightly points out that the solution many in the tech industry have given to the problem of lack of empathy is simply to develop more apps. Empathy apps supposedly train humans to be more caring, and Turkle ends the book wondering about the trend toward humans having more conversations with a machine, which effectively adds a "fourth chair" in Thoreau's metaphor. What begins as simple commands to Siri on one's iPhone will eventually become full-fledged relationships with machine AI, especially in cases of child or elder care. Turkle worries that these controlled conversations will further inoculate people against wanting to engage in unpredictable, free-flowing, sometimes painful human conversations.

One of the challenges for Turkle is how to articulate the way that conversation as distraction should work. On one hand, the constant distraction of alerts on our devices and never-ending texts and emails seems to reduce productivity, and Turkle argues that creative people need long periods of alone time to develop ideas. But on the other hand, she also brings evidence that working from home prevents co-workers from bumping into each other and serendipitously sharing information that does not transfer well in emails or formal meetings. If open work environments are not helpful, neither is isolated, remote work or constant email. What, then, is the solution? Turkle points out that these kinds of conundrums mean that simple solutions like "turn off your phone and talk" will not solve all our problems. More complex solutions, such as doctors hiring scribes to do data entry so the physician can look a patient in the eye, will take time and creativity.

Another challenge in the book is to ground the need for conversation beyond itself and to articulate what kinds of conversations are truly good. Turkle shows that open conversations can help a business be more productive, but the idea that productivity is an inherent good toward which humans should work is simply assumed. She also argues that conversation can make us more empathetic or help us engage with the world around us, but she does not mention that pre-digital people who had the kind

of conversations Turkle wants us to have were not necessarily more empathetic. So is face-to-face, eye-to-eye conversation itself inherently good, or is there more to it than that? That said, her final "guideposts" (pp. 319–33) are helpful for thinking through how we might overcome some of the negative impacts of digital communication and work toward a world in which creativity and human connection can flourish.

If one is looking for a book explaining what a conversation is and how to have a good one, Turkle's book probably will not be of much benefit, but for someone looking for language to describe the relational difficulties that have arisen since the advent of the smartphone, *Reclaiming Conversation* offers a rich exploration that is, interestingly enough, rooted in great conversations between the author and others.

*Reviewed by John Dyer, Executive Director of Communications and Educational Technology, Dallas Theological Seminary, Dallas, TX 75204-6411.* ✡

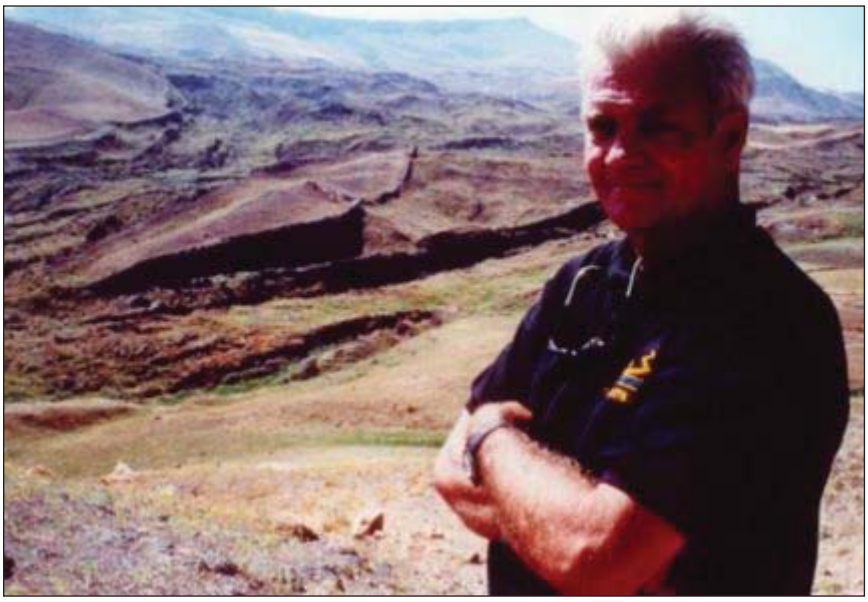
# Letter

## Pursuing the Truth despite the Cost

David Fasold was a merchant marine officer on a commercial transport boat and so knew a lot about boats. He heard about the possible Noah's ark at Dogubayazit, Turkey, from Ron Wyatt, and when he came with Ron to see it in 1985, he was sure that it was a wreck of a boat. In 1988, his book, *The Ark of Noah*, which describes the reasons for his belief that the boat-shaped formation was Noah's ark, was published. However, he had no training in geology. After several years of hearing from Ron Wyatt and others that the ribs, deck, and walls of the boat remains were composed of petrified wood, he began to have some doubts.

Fasold hired a TV crew from Germany to come with him to the ark site to photograph the petrified wood of the boat ribs, himself paying for the crew's airline tickets and expenses. While they were there, he discovered that Ron had carved the eroded and weathered fractures in the structure so that the spaces between the fractures made the rock layers between the fractures stand out like ribs. Unfortunately, he could not see any petrified wood in them. So, Fasold had to tell the TV crew that he was sorry he had wasted their time, and he sent them home.

Because of his rising doubts, Fasold collected twelve samples from various places at the structure that were being described as petrified wood, along with an "iron bracket," a part of an "anchor stone," and a "reed stone." With some risk, he smuggled the samples out of Turkey through customs. Somehow he got hold of me and asked me to voice my opinion. I had not been to the site, but I did a thin section study for him on all the samples he had collected. I then invited him to California State University Northridge and showed him what thin sections of fossilized wood looked like compared with thin sections of basalt and andesite. I also went to his house in San Diego and gave him a slide show on volcanic rocks so that he could understand what processes occur in the formation of volcanoes. When all of this was done, he had no doubt in his mind that the formation was not Noah's ark.



David Fasold in front of what at the time he thought were the remains of the ark (photo provided by David Fasold).

David told me that his book, *The Ark of Noah*, was selling so fast that it was number 15 in world sales and that his book publisher was translating his book into five different foreign languages. But realizing now that the structure was not Noah's ark, he cancelled all further publication of the book, likely costing him hundreds of thousands of dollars in royalties. David just wanted the truth.

He agreed to co-author an article with me for my website titled