

## Book Reviews

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 homeschooled a child should read this book cover to cover. They should study the diagrams, tables, and photo-

graphs. 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.

*Reviewed by Davis A. Young, Professor of Geology, Emeritus, Calvin College, Grand Rapids, MI 49546.*



### ORIGINS

**DARWIN IN THE TWENTY-FIRST CENTURY: Nature, Humanity, and God** by Phillip R. Sloan, Gerald McKenny, and Kathleen Eggleston, 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., heterotopy, 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).

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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