

Book Reviews



ENVIRONMENT

GARDENING EDEN: How Creation Care Will Change Your Faith, Your Life, and Our World by Michael Abbaté. Colorado Springs, CO: WaterBrook Press, 2009. 272 pages. Paperback; \$13.99. ISBN: 9780307444998.

This is a book on environmental stewardship that is biblical and balanced in terms of the applications that it recommends. It should be well received by Christians with a wide range of persuasions about our specific responsibilities for creation care. The jacket summarizes the book well with the following two comments: "*Gardening Eden* invites you to consider a new, spiritual perspective to practical environmentalism ... Discover creation care as an act of worship and a call to deeper harmony with our Creator, our fellow gardeners and our living earth."

Michael Abbaté is a nationally recognized expert in green development strategies with LEED and ASLA certifications. He is also the founder of Green Works, an award-winning landscape architectural design firm. He currently directs urban design and planning for Gresham, Oregon, near Portland. His works have been featured in national trade publications, newspapers, and magazines. Abbaté writes clearly, but sensitively, as a leading conservationist who is motivated and guided as a Christian by his commitment to scriptural teaching. Many ASA members had the opportunity to hear him speak at our 2009 annual meeting at Baylor University, where he gave an outstanding presentation at our Sunday morning service.

Gardening Eden begins with a very helpful foreword by Randy Alcorn, who sets the stage for Abbaté's presentation by describing an experience he had speaking to a conference of several thousand college students at which his own message on creation care was received with coolness, apparently because environmentalism is usually associated with a liberal political agenda, and is therefore suspect in many Christian circles. He applauds (as I do) Michael's efforts at helping evangelical Christians see creation care as our responsibility.

The book is divided into two parts: the first deals with conceptual questions about creation care, and the second explores very simple and practical things that most of us can do and probably do not do, at least consistently. The conceptual part of the book avoids trying to motivate the reader to take action by apocalyptic predictions or by bludgeoning the reader with guilt. Rather, Abbaté develops a theological perspective that begins with the concept that "This is my Father's world." The five key themes from Scripture are as follows: what God made is good; God loves the world he created; what God made is God's, not ours; everything was created to glorify God; and God appointed us as stewards.

After establishing our stewardship responsibility to God, Abbaté develops the blessing that the beauty of nature is to provide for us, and the special sense of communion with God that we experience in a unique way when we are surrounded by God's creation. Then he evaluates how well we are carrying out our collective stewardship responsibilities by reviewing some of the growing concerns in nature that are man-made and that can be alleviated by corrective action on our part.

In a very personal and specific way, Part II of the book deals with things that each of us can do to be better gardeners in our patch of "Eden." This part of the book considers food, energy, transportation, and making our home in the garden. The treatment here is positively encouraging, and the suggestions are very practical. As an engineer, and given my finite time and financial resources, the only thing that I missed, and would have appreciated seeing more of, was a cost/benefit analysis which could help in deciding what is worth doing. For example, hybrid automobiles are recommended as a good way to practice creation care. But the last time I purchased an automobile, the cost of a hybrid with fuel for 100,000 miles was \$4,000 more than a conventional car of similar size that would use maybe 20% more fuel. Was the small, positive impact that this decision would have on the environment really worth \$4,000? I decided not to purchase the hybrid, but rather to use the \$4,000 to buy a used Toyota van for a missionary family in Nepal who had no automobile at all. Stewardship of nature must be practiced in the greater context of stewardship of our financial and time resources. And there are some "Gardening in Eden" options that are not really worth the creation care benefits that they produce.

I would highly recommend this excellent book to anyone interested in being encouraged and directed to be a better "Gardener in Eden."

Reviewed by Walter L. Bradley, Distinguished Professor of Mechanical Engineering, Baylor University, Waco, TX 76798.

THE NATURE OF CITIES: Ecological Visions and the American Urban Professions, 1920-1960 by Jennifer S. Light. Baltimore: Johns Hopkins University Press, 2009. 328 pages. Hardcover; \$60.00. ISBN: 9780801891366.

Those interested in the way the sciences can influence each other, inform federal policy and, finally, shape the human habitat, will find in *The Nature of Cities* a compelling and detailed story of the relation between biology, urban sociology, and the American city from 1920 to 1960.

Nature and the city are often opposed to each other in the American imagination. In the early years of European settlement on the North American continent, the city was valued as a safe haven, a source of protection and provisions; nature was feared for its harsh seasons, hidden dangers and merciless powers. After the industrial revolution, the city became known for its crime, social inequity, and general shabbiness; nature, on the other hand, was revered as the untouched realm of harmony, beauty and serenity. In *The Nature of Cities*, Northwestern University Professor Jennifer Light indicates how this conventional contrast was effaced in the early 20th century by the growing conviction among urban theorists that the city was governed by laws much like those that rule the natural world of living things. Like living organisms, cities have a life cycle of birth, growth, decline and death; like ecological zones, urban neighborhoods are subject to Clementsian laws of colonization, succession, and climax. The city could be modeled on nature. An explanatory science of urban sociology could be built on biological analogies.

Moreover, just as the science of biology informed the federal conservation of natural resources, so the newly developed urban ecology could be used to guide the conservation of urban resources—especially after the worrisome deterioration of American cities during the Depression years. The laws would enable not only the explanation of urban life, but also grant the power to predict and control it. Some phases of the natural life cycle—namely, decline and death—are clearly undesirable. Science could outline methods of their prevention. “Incipient blight need not run its course,” claimed Herbert Thelen, University of Chicago professor, as he surveyed Southside of Chicago in the 1950s (p. 119). Scientifically guided interventions could forestall the decline of a neighborhood, even reverse its deterioration. Maps were made of urban regions, designating neighborhoods for different forms of federally sponsored intervention: conservation, rehabilitation, and demolition/redevelopment.

The applied science of urban resource management, however, ran into its share of problems. Designating an area for demolition was a politically volatile act; and the actual demolition of such areas, in the heyday of urban renewal, often only made things worse: it destroyed fragile social networks and informal economies, uprooted and displaced entire populations, putting even more downward pressure on neighborhoods marked for conservation. In addition, focus on the physical condition of an urban neighborhood often excluded, Light points out, other equally important factors, most notably the racial attitudes of its inhabitants. This, in turn, exposed the theoretical poverty of the analogical project that sought to build an urban sociology on a biological basis. Plants do not have racial attitudes; humans do. This difference is emblematic of the fact that the complexity of human urban life cannot be reduced to a linear model of birth, growth, and decay, or the natural course of vegetative succession. For that reason, the sociology rooted in a few biological concepts was ill prepared to handle the complex interactions of physical, social and economic factors at work in urban neighborhoods.

By the 1960s, the ecological model for urban sociology had run its course, a victim of its own inadequacies. Entering the Cold War era, the discipline reached for nonlinear systems thinking, especially as it was developed for the purposes of military planning. At the same time, the dominant metaphors in the language of urban policy changed: the war on poverty was declared, security maps were drawn, neighborhoods braced for invasions of heterogeneous racial groups, and neighborhood associations elected block captains. When the Housing and Urban Development Department (HUD) was formed in 1965 under President Eisenhower, the model, Light claims, was no longer the Department of Agriculture, but the Department of Defense (p. 171).

The Nature of Cities is well researched and documented. The first chapter, 29 pages, has 128 endnotes; the endnotes for the entire book run to 128 pages. This inspires confidence in the accuracy of the claims. It also makes for heavy sledding at the ground level of the narrative. Be prepared for a barrage of dates, names of persons, committees, government agencies, titles of reports, even lists of university course offerings. At the conceptual level, however, the

book is an instructive and sobering lesson in the sociology of knowledge and the rhetoric of science.

Reviewed by Lee Hardy, Professor of Philosophy, Calvin College, Grand Rapids, MI 49546.

GREEN REVOLUTION: Coming Together to Care for Creation by Ben Lowe. Downers Grove, IL: IVP Books, 2009. 206 pages. Paperback; \$15.00. ISBN: 0830836241.

Ben Lowe works for Renewal, an organization that seeks to equip and empower creation care in churches, campuses, and communities. This book relates his journey in coming to an awareness of the importance of creation care and his subsequent activism. It is a helpful guide for people new and sympathetic to the idea of creation care, as it introduces the reader to basic theological reasons to engage in creation care, gives insight into effective ways to start and sustain creation care groups, and most extensively introduces the major figures, organizations, and initiatives in the creation care movement.

The first part of the book establishes the theological basis for creation care, often illustrating the principles with examples from the creation care movement. The degradation of the environment through overconsumption, greed, and exploitation is a perversion of how God intended humanity to live on the earth. God desires *shalom*, every aspect of creation in right relationship, and this includes humanity’s relationship to the environment. Instead of behaving as proper stewards of the creation, we have squandered our inheritance and, like the prodigal son, must return to our Father and seek forgiveness. In order to understand the brokenness between humanity and the environment, we need to see the suffering of people and nature, resulting from humanity’s failure of stewardship.

The second part intertwines the history of the creation care movement, narratives of the movement in action, and guidance in starting and running a creation care group. Lowe deals almost exclusively with the recent creation care movement within the evangelical church in the United States. Highlights include an exploration of Lowe’s own journey to accepting the problem of global warming, a discussion of obstacles to creation care, and the need to seek sustainability in one’s activism. The strength of this section is the exposure to the myriad of creation care organizations and initiatives.

The final part stresses the importance of having all parties of the creation care movement working together (especially to nurture young activists), and of positioning the movement as a nonpartisan, yet political, entity in the context of American politics. Lowe emphasizes that creation care on its own is an incomplete gospel; evangelism and social concern must go together. In fact, he has found that engaging in environmental activism has enabled him to share the gospel with many nonbelievers. The book contains an excellent set of resource appendices including a bibliography for further reading and information on many of the creation care organizations discussed in the text. Another feature of the book is the “Uplink” section following each chapter. These sections are essentially

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afterwords written by people of influence, often from the creation care movement.

Since Lowe seeks to provide a relatively brief overview of the creation care movement, he is not able to venture in depth into specific areas. The book is not a comprehensive theological explanation or apology for why Christians should engage in creation care. Complex theological topics such as *shalom* theology, incarnational modeling, and the relationship of the new earth to the old one at the final judgment, are treated relatively briefly. Similarly, the book is not focused on presenting a robust scientific case for creation care beyond providing some arguments that humans are the primary cause of the climate change crisis. Therefore, if an intended audience is not sympathetic or at least open to the theology and scientific evidence used in the creation care movement, the book will not convince them. Additionally, the book is not a comprehensive “how-to” guide to organizing, launching, and sustaining activist groups, although it does contain many excellent and helpful insights in this area.

What Lowe is most successful in providing is sharing the “good news” of the creation care movement and inviting the reader to take part. The book is ideal for evangelical communities already interested in creation care or moving in that direction. It would be appropriate for youth groups, small groups, adult Sunday school, and campus groups, helping to generate discussion, encourage action, and point to further resources and organizations in the creation care movement. Although Lowe is speaking primarily to his own generation of youth, students, and recent graduates, the book is accessible to anyone interested in creation care. Additionally, it should find its way into the supplemental bibliography of any courses on Christian environmental ethics or creation care/stewardship of creation.

Reviewed by Nikola T. Caric, McMaster University Divinity College, Hamilton, ON L8S 4K1.



ETHICS AND NEWBORN GENETIC SCREENING: New Technologies, New Challenges by Mary Ann Bailly and Thomas H. Murray, eds. Baltimore, MD: Johns Hopkins University Press, 2009. 330 pages, appendix, index. Hardcover; \$50.00. ISBN: 9780801891519.

Ethics and Newborn Genetic Screening is a jarring challenge to the momentum of prevailing practice and legislation. Screening at birth for PKU began forty years ago and has become routine. As new genetic tests have become available, caregivers and legislatures have struggled to determine which tests should be added to the standard of care. The National Human Genome Research Institute of NIH funded a Hastings Center project to guide professionals and policy makers responsible for such selection. In this volume, the editors gather fourteen reports commissioned for that project. The thrust of many of the essays and the editors in their conclusion is that the most influential working group before their study has prescribed far more newborn genetic tests than are warranted. They argue that the widely followed recommendations developed by the

American College of Medical Genetics (ACMG) in 2006 are deeply flawed.

The ACMG recommends that all states implement a screening panel for twenty-nine primary disorders and twenty-five secondary disorders. The report was endorsed by groups such as the American Academy of Pediatrics and applied substantially in legislation across most states. Bailly and Murray argue that far fewer tests can be justified if screening is to be evidence based and to take into account opportunity costs, fair distribution of costs and benefits, and respect for human rights. The central charge is that the availability of multiplex testing from tandem mass spectrometry has spurred approval of tests that would not have been recommended on their own. Many of the prescribed tests do not have enough evidence of efficacy, particularly when they draw funds away from more effective services. A multiplex examination of a single blood spot implies one cost whether bearing five tests or twenty-nine, but ignores the fact that added tests extend costs for further training, false positives, counseling for parent understanding, and so forth. The editors show, for example, that Mississippi increased screening and counseling from five disorders to forty at the same time as prenatal care suffered reduced funding. The infant mortality rate rose. The example is heartrending but it may not be directly relevant, since the benefits of genetic screening, such as for PKU, would improve survival *after* infancy, not the infant mortality rates *per se*. Such screening can also dramatically improve quality of life, but this too is something that infant mortality statistics do not take into account. Most genetic screening is not aimed at initial infant mortality. It pursues different ends. Even so, the underlying point is well taken, that investing in one health intervention often means investing less in another. Genetic testing has been quite successful and economical in some cases, but that does not verify that every test is cost effective. The authors agree that cost effectiveness in a finite health-care delivery context is an ethical concern. It is not ethical to spend limited resources where they will not best serve.

Besides contesting the prescribed list of tests and arguing for what criteria would better assess the value of inclusion on that list, the authors also offer specific practical advice. There is, for example, a helpfully distilled set of four key messages that parents now need to hear: “Newborn screening will happen soon after your baby is delivered; your obstetrician recommends it; most babies picked up by screening for a disorder do not have the disorder but those few who do, need urgent treatment; you must follow up immediately if notified of a positive result.”

The essays throughout are carefully argued by scholars in their respective disciplines. The strongest theme is a call for further research, as the range of available tests, their costs, and what treatment can actually be offered for those who prove positive are all changing rapidly. The book would be useful not only to professionals specifically involved in genetic testing services, but also to anyone interested in an example of how a particular science is funded and practiced for the public interest.

Reviewed by James Peterson, R. A. Hope Professor of Theology and Ethics, McMaster University Divinity College and Faculty of Health Sciences, Hamilton, ON L8S 4K1.



HEALTH & MEDICINE

MEDICINE AND HEALTH CARE IN EARLY CHRISTIANITY by Gary B. Ferngren. Baltimore, MD: The Johns Hopkins University Press, 2009. 152 pages + notes, bibliography. Hardcover; \$35.00. ISBN: 9780801891427.

In this superb work of historical and conceptual scholarship, Gary B. Ferngren unfolds for the reader a cultural milieu of healing practices during the early centuries of Christianity. A professed historian of classical texts, Ferngren presents, in the beginning pages, his two primary objectives: (1) to correct a perceived misapprehension that "religious healing" was normative among Christians in the New Testament period and (2) to unravel the origins of Christian philanthropy that led to the establishment of hospitals as institutions of care. The book's stated key underlying assumptions include (1) accepting the credibility of the New Testament and early Christian witnesses in their portrayal of Jesus' ministry and the origins of the Christian community and (2) the belief that early Christians accepted and participated in Greek medical practice. The Christianity to which Ferngren refers is "the incarnational Christian movement," as defined by the early creeds, and exclusive of heretical and cultic sects, save for the Montanists who receive special attention.

Ferngren lays out his methodology as a historical-philological approach, which he says is meant to complement textual-philological-historical methodology. He cautions against sociological approaches that he feels privilege social forces over theological and philosophical aspects of the text, and against post-structural interpretations. He is particularly critical of the tendency of discourse analysis to see charitable motives as the ideology of a power-hungry church hierarchy, justifying its growing power over society. In attempting to avoid such pitfalls, the author tries to wade through the consciousness of those who constituted the early church, so as to understand their struggle to reconceptualize ideas of health and medicine in light of Christ's redeeming power.

He is also critical of dualistic interpretations that see early Christians as generally favoring supernatural over physical means of healing. For example, he eloquently tries to show that Origen's teaching of seeking prayer alone for healing is a reflection of seeking a closer dependence on God, rather than a dualistic preference for spirituality over bodily healing through medicine (though this reader is not fully convinced that Origen is free from such dualistic tendencies). While the rise of asceticism in the third and fourth centuries, with its contempt of the material, fostered such a dualism, according to the author, it should not be generalized to the Christian community at large.

Ferngren offers particularly pointed criticism toward those who err in the use and interpretation of quotations taken out of context, and who fall into the methodological traps that he tries so hard to avoid. However, he also gives credit, when credit is due, to the novel insights of fellow scholars.

In organizing the book's chapters, the author posits position statements or theses with each one, acknowledged

ing when sources are limited, while providing copious references. At the end of each chapter, he provides crisp and faithful summaries of his main points and themes; these are welcome after sometimes intense and rich academic expositions. In the first four chapters, he articulates Christian responses regarding causes of disease and the evolution of Christianity as a distinct religion of healing. In the next three chapters, he traces the development of Christian *agape* love toward others as a novel concept in the ancient world. He contrasts it with Jewish, Stoic, Gnostic, and other prevalent worldviews, showing its influence on the outworking of benevolent expressions within the church and toward those outside the church.

Whereas pagan public health isolated the afflicted socially and physically during times of epidemic plague, Christians witnessed to their pagan neighbors their belief in *agape* love, to their pagan neighbors, through their self-sacrifice for victims. Ferngren methodically traces the organization of such expressions of healing and caring love that manifested itself in the diaconal model of philanthropy, through the mid-fourth century. With time, fuller and more public expressions developed in the form of early hospitals established by monastic orders as well as lay orders, whose members sought out the homeless and provided palliative care as extensions of various churches. He also distinguishes different streams of conceptual understanding of disease in the Eastern and Western churches, such as a greater acceptance of demonic influence on illness in the East, and a greater use of physicians in the West.

Despite his judicious and systematic precautions against misinterpretations, Ferngren has his own moments of interpretive lapse. For example, in his admission of the paucity of sources, he also admits to a consequent reliance on circumstantial evidence. On the topic of ritual healing, he concludes that it is "more reasonable" to consider the silence of available sources as evidence for its very low prevalence, a claim of dubious merit in light of the possibility of inherent selection bias.

The author also repeatedly makes the fundamental claim that the prevalent Greco-Roman medicine of the day was value-neutral by virtue of its "naturalistic basis." While his arguments are well laid out in his customary way, his idea that a pagan concept of medicine can be readily adopted into a Christian way of life without resultant tensions with that way of life, exposes his own unacknowledged dualistic tendencies. He says of the early Christians, "their understanding of medicine reflected the values that had permeated the Mediterranean world" (p. 10), seemingly contradicting his value-neutral hypothesis.

Ferngren provides a marvelous window into the mind of the early church on matters of medical care, healing, and the struggle with its surrounding pagan cultures, largely accomplishing his primary objectives. His arguments are always compelling and usually convincing. He shows how Christians lived out their faith as a positive healing and caring witness, boldly living out their Christianity as a persuasive alternative to the failed pagan responses to fellow human beings in need.

Reviewed by James J. Rusthoven, Professor of Oncology, McMaster University, Hamilton, ON L9G 1G4.

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HISTORY OF SCIENCE

FRANCIS CRICK: Hunter of Life's Secrets by Robert C. Olby. Woodbury, NY: Cold Spring Harbor Laboratory Press, 2009. 538 pages, illus., indexes. Hardcover; \$45.00. ISBN: 9780879697983.

This book by Robert Olby provides a detailed intellectual biography of Francis Crick, best known for his work on the DNA double helix. As the term 'intellectual biography' suggests, the book has the primary task of describing Crick's life-long intellectual journey. We are afforded insights to his personality and other nonscientific aspects of his life which informed and guided his scientific work. Given Crick's flamboyant personality and often highly controversial views about broader issues, it would have been easy to have these aspects dominate the account. Despite the intentional intellectual focus of the book, I nevertheless found myself most intrigued by the non-scientific aspects of the account, though they are a minor part of the whole.

Of course, we do learn much about Crick the man from the way in which he pursued his science. Olby does a masterful job of showing Crick in action as a scientist, from the time he began his doctoral research in physics until his pursuit of a scientific explanation for human consciousness at the end of his career. We are offered wonderful descriptions of the community of scientists in which he participated, the different personalities, unusual scientific styles, and their responses to the unique and dominating style of Crick himself. As a scientist, I found the descriptions of the intense competition, the practical jokes between scientists, the Cambridge environment, the unique worldwide working groups for idea generation, and the like, extremely interesting.

As readers, we are drawn into the scientific drama of those pursuing important questions not yet answered. We experience the mixed feelings of excitement and uncertainty as Crick and his compatriots develop the structural model for DNA and then explore the various potential mechanisms by which DNA could use its genetic code to manufacture proteins. Crick's scientific style was formulated and put on display very clearly in his early work with Jim Watson that led to the discovery of the double helix structure for DNA. Having gained scientific stature from this success, he later seemed to serve as research advisor for the entire field, not doing experiments directly himself, but staying abreast of important developments in the field and using his keen intellect and broad background to develop models for their explanation. At times this led him precariously close to the edge of scientific impropriety. Yet, his prolific generation of new ideas, and his ability to pursue them unwaveringly to their logical conclusion, set him apart from his peers, and produced stunning advances in our understanding of many of the most important questions in molecular biology, a field he helped define.

The readers of *PSCF* will be especially interested in the way in which Crick's uncompromising scientific naturalism informed and guided his choice of scientific problems and his approach to their solution. This intense search

for purely naturalistic explanations for all phenomena is clearly at the heart of his plunge late in life into neuroscience, pursuing just such explanations for human consciousness. He had an unwavering belief that, once explanations were proven to be scientifically valid, all thoughtful people would find them complete and fully satisfying. He clearly loathed nonscientific explanations, and considered them to arise out of intellectual weakness. This comes through clearly in his last book, titled "The Astonishing Hypothesis," where he states, "The Astonishing Hypothesis is the 'You,' your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, which are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules" (p. 410).

Throughout the book, Olby does a credible job of explaining the science to the lay reader, not as a textbook, after the fact, but from the point of view of the active participants who form their hypotheses and test them in the midst of unfolding and incomplete data. For those of us who are less knowledgeable in biology, the later chapters on vision and human consciousness are somewhat less accessible, and perhaps less interesting, since major breakthroughs in understanding eluded Crick. One senses a growing frustration on Crick's part as his life draws to a close, wishing for more time to pursue his science and leave his mark.

In summary, Olby has written an interesting and informative intellectual biography of Crick, one of the foremost scientists of the twentieth century. By means of the book, we see both the scientific genius and personal foibles of Crick, the hunter of life's secrets.

Reviewed by Timothy S. Zwier, Professor of Chemistry, Purdue University, West Lafayette, IN 47907-2084.



NATURAL SCIENCES

STEPHEN JAY GOULD AND THE POLITICS OF EVOLUTION by David F. Prindle. Amhurst, NY: Prometheus Books, 2009. 249 pages. Hardcover; \$26.98. ISBN: 9781591027188.

The book is well written, and terms from evolutionary biology are defined in a glossary, making it accessible to those with more background in politics than in evolution. By confining itself to published sources, it may miss out on more-personal insights; however, published sources are likely to be written carefully and at greater length, and less subject to misinterpretation. As might be expected from a political scientist, there are errors in detail when specific biological issues are mentioned, but as a rule the errors do not affect, or even moderately undermine, the claims being made (for example, stating that most mutations are fatal or that full new species have not been made are errors that would tend to support anti-evolutionism). However, most social sciences have the statistics to not misidentify negative correlation as no correlation (p. 160), and politics gets a surprisingly superficial treatment.

As a political scientist, Prindle may have missed some of the nuances of the controversies associated with Gould

within evolutionary biology. Prindle begins with a discussion of Gould's popular style and appeal to the public, linking the controversy his style generated to the tradition of scientific suspicion of popularizing in contrast to "serious" work. While that was a factor, Gould's popular style sometimes intruded into his research articles as well. I consider popularizing a good thing, but recall my annoyance in reading an article by Gould. If I read *Paleobiology*, I already think that it is exciting to find an unusual pattern in organisms and want to know about the pattern, not how "exquisite" Gould's thrill was to find it. Also, as a paleontologist, I see most of the science issues raised by Gould as having now arrived at the stage of recognizing that sometimes evolution follows a more Gouldian pattern and sometimes it does not. Relative frequencies are still being debated, but I feel that we have moved on to investigating, for example, what situations produce a more punctuated or more gradualistic pattern, or the interaction of constraints and adaptation, rather than having mutually opposed options.

The glossary does not cover the key political terms. The political left is defined in the text as viewing inequality as a problem, to be addressed by some degree of redistribution; the right as accepting differences as merited. Such a simplistic dichotomy is amenable to selective identification of individuals or ideas by focusing on aspects that do or do not match the favored category (the left for Prindle). Thus, abortion is mentioned as part of the liberal agenda, and creationism is viewed as part of a conservative agenda, ignoring the exclusion of the unborn and the creationists from equal opportunity. Likewise, scientists are opposed to creationists as exclusive categories, and evolution is said to entail atheism. (Prindle endorses NOMA as a politically expedient lie.) Mentioning only Kuhn's and Popper's views limits the philosophy of science to a very simplistic version.

Prindle describes some misappropriations of punctuated equilibrium and other natural scientific models as buzzwords for social science ideas with no more than metaphorical connections to the original. However, he does not rigorously examine the merits of the purported links between Gould's scientific ideas and the political position that Gould (and, evidently, Prindle) wanted to advance. I think it is good to have a diversity of hypotheses in science; people drawing on different political and philosophical views can be inspired to look at things differently. However, I believe that the hypotheses must then be assessed solely on their empirical merit as scientific models, not on whether you like the perceived external implications. Despite occasional assertions of intent to avoid endorsing a particular position in the internalist-externalist debate, Prindle wants political implications to be linked with evolutionary biology. But the claim that evolutionary biology has implications for politics is not carefully considered. The is-ought problem is dismissed as futile; after all, a "minor" premise can be made affirming a particular link between "is" and "ought" (p. 70-1). Prindle admits that contradictory political positions claim to draw on the same evolutionary biology. Also, he notes that biologists who advocate a deterministic, adaptationist, and/or sociobiological position that supposedly supports a politically right-wing position are, in fact, politically overwhelmingly on the left. Nevertheless, the book pro-

motes the idea that indeterminism in evolution (Gould's position) supports the political left. In reality, one could support the acceptance of inequality while claiming it is the product of luck, just as one can claim that society ought to help those who are deterministically disadvantaged by their evolutionary heritage. Political left and right can both invoke either Gouldian or non-Gouldian evolutionary biology, because they are merely imposing their own "minor" premises about the desired moral value.

Thus, the book provides an interesting survey of an interface between evolutionary biology and politics, but is far from convincing in its advocacy of a particular politically liberal conclusion.

Reviewed by David Campbell, Paleontological Research Institution, Ithaca, NY 14850.



ORIGINS & COSMOLOGY

WHY EVOLUTION WORKS (AND CREATIONISM FAILS) by Matt Young and Paul K. Strode. Piscataway, NJ: Rutgers University Press, 2009. xviii + 241 pages. Paperback; \$21.95. ISBN: 9780813545509.

The dedication expresses the hope that this book will not be needed in a generation. Unfortunately, other books are needed if this hope is to be fulfilled. The book does a good job of presenting scientific evidence and particular scientific problems common in young-earth or intelligent design arguments, at a generally accessible level. There are some passing errors in detail: for example, page 69 refers to chemosynthetic bacteria as plants and says that eyes, being soft tissues, do not fossilize (some eyes have hard parts, as in most arthropods; rarely are soft-tissue eyes fossilized). The discussion of pseudoscience versus science is also good, and the index and bibliography are good.

However, on philosophical and religious topics, the book means well, but does poorly. Like many works by nonbelievers who are not antagonistic to religion, there is a mix of statements supporting the compatibility of religion and science, and ones that suggest incompatibility, at least without significant watering down. For example, defining higher criticism as "careful, dispassionate efforts to deduce the origin, age, or veracity of various sections of the Bible" (p. 21) will make many theologically conservative readers question the authors' reliability as judges of credible work. Conversely, asserting that a local Flood is unbiblical (p. 56) provides fodder for opponents of conventional geology. Statements of the erroneousness of creationism are made before the detailed discussion, again probably putting off the target audience.

Poor philosophical arguments against ID (such as who made the designer, p. 62) are included. The glossary definition of ID is that "evolution must have been guided, at least at times, by a designer, who is presumed to be the Christian God." The assertion that God guides evolution is more typical of theistic evolution than of ID, which usually invokes stronger intervention than simple guidance, and not all ID advocates are Christian.

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The glossary is very thorough and generally does well with the scientific terms, but sometimes has problems on the philosophical or religious end. On the other hand, probably almost all of the ASA would agree with their assertion that Gould's NOMA is incorrect, because science and religion do interact and overlap in at least some ways.

Thus, this is probably not the book to give to a friend who is skeptical about evolution. It is, however, a good book to read discerningly, picking out useful parts.

Reviewed by David Campbell, Paleontological Research Institution, Ithaca, NY 14850.



PHILOSOPHY & THEOLOGY

HIDDEN WORLDVIEWS: Eight Cultural Stories That Shape Our Lives by Steve Wilkens and Mark L. Sanford. Downers Grove, IL: IVP Academic Press, 2009. 218 pages. Paperback; \$22.00. ISBN: 9780830838547.

With at least twenty-five books currently available on Christian worldview, one can wonder whether another book on the subject is necessary. The opening paragraph of *Hidden Worldviews* makes a case for its own existence by acknowledging that it is, like most of the books on Christian worldview, an apologetic for Christian faith—but its special aim “is to provoke Christians to adopt a Christian worldview” (p. 11). Why? Because while Christians have become adept at spotting the unbiblical worldviews that are spawned by the academy, too many Christians have failed to see that “the most powerful influences [on them] come from worldviews that emerge from culture” (p. 12). In the lives of too many Christians, such worldviews are “hidden in plain sight” (p. 12).

Part of the reason for this, the authors wisely point out, is that many Christians forget that our worldviews are “lived” as well as thought. Worldview beliefs are more likely to be absorbed through cultural contact than adopted through a rational evaluation of competing theories (p. 12). The authors’ claim is that “worldviews are more than just intellectual systems” (p. 14)—they flow from the commitments of our hearts (pp. 15f.). This is a refreshing insight. When one examines the roots of the term “worldview”¹ and its appropriation by the evangelical world via Wolters’ *Creation Regained*² and Walsh and Middleton’s *Transforming Vision*,³ it is clear that, originally, worldview meant a tacit vision of life that works at a pretheoretical as well as a theoretical level. Yet a number of those twenty-five worldview books are little more than updated Christian systematic apologetics.⁴ Wilkens and Sanford are off to a good start in trying to alert their readers to the messy, less-systematic character of worldviews. They do this by treating worldviews as stories.

The heart of the book is the authors’ chapter-length examinations of eight worldviews: Individualism, Consumerism, Nationalism, Moral Relativism, Scientific Naturalism, the New Age, Postmodern Tribalism, and Salvation by Therapy. Rather than focus on the academic sources of these beliefs, Wilkens and Sanford describe the everyday cultural experiences and beliefs that produce

these worldviews. After an introduction to each worldview, each chapter highlights the truths of the worldview and also its potential problems. This is a helpful approach, for too many Christian analyses of worldviews are almost exclusively critical in focus. Given the book’s intended general audience, the analysis and critique are brief and succinct.

Perhaps the weakest chapter is that on Moral Relativism. Wilkens and Sanford correctly point out that many Christians today are reticent about making strong moral judgments but are not therefore absolute relativists. Rather, these Christians are striving for greater humility and compassion in such judgments. Unfortunately, at this point, the authors fall back on the rather facile claims that we should be humble because “we do not have the God’s-eye view” and God is more tolerant than we think (pp. 98f.). While in the earlier part of the chapter they have quite effectively pointed out the logical and practical inconsistencies to which this soft relativism leads (pp. 92–7), they overlook the problems of this moral humility (for example, is not the critique of the God’s-eye view itself pronounced as if from on high?) or the difficulties attendant upon the suggestion that God’s patience with our sin means he is tolerant (what, then, of divine judgment?) (p. 99).

Of interest to readers of this journal, one of the better chapters is on the worldview of scientific naturalism. No fresh ground is broken here, but the best arguments illustrating the weakness of scientific naturalism as a worldview are nicely summed up. For example, the authors correctly note that scientific naturalism’s basic beliefs amount to a metaphysics, i.e., a belief in the non-physical (pp. 109ff.). If so, then scientific naturalism’s rejection of religious belief in science because it brings in nonempirical factors, is self-contradictory. Again, Wilkens and Sanford observe that scientific naturalism’s worldview ultimately offers no explanation of the validity of rationality (pp. 114f.), a claim similar to Alvin Plantinga’s evolutionary critique.

The book concludes with two chapters on developing a Christian worldview. The themes of creation-fall-redemption are outlined and the reader is offered a specific approach to worldview issues rooted in the Wesleyan Quadrilateral of Scripture-Reason-Experience-Tradition. This section leaves this reviewer with a number of unanswered questions. For example, while the authors acknowledge that reason is affected by the Fall, they give only a general discussion of what this means (pp. 212–3). Again, while God is recognized as Creator, the manner in which he governs creation is largely unaddressed (pp. 185–8). Maybe this is more of a comment on the authors’ desire to address a general audience than it is a shortcoming (thus the book has no bibliography or further suggested readings). But these questions have huge implications for how we think in and live out a Christian worldview, especially in the natural sciences.

Likewise, it has become fashionable to try to avoid an overly rationalistic approach to Christian worldview by speaking, as Wilkens and Sanford do, of the biblical “story” (e.g., p. 200). Yet this approach is fraught with difficulties and potential pitfalls. Stories, to be sure, have a less-than-formal logical orderliness—but they also are

human inventions whose coherence derives as much from their rhetorical qualities as it does from their truth. Wilkens and Sanford attempt to address some of these concerns in their section titled “But is God’s Story a True Story?” (pp. 200f.). The language of “story” needs more support than this if it is to be used as a Christian worldview term.

Readers interested in a deeper and more nuanced approach to worldview will need more than *Hidden Worldviews* on their shelf. But within the above limitations, this is a good book—well written and pastoral in its tone. Readers new to worldview thinking will come away from *Hidden Worldviews* wiser about the false worldviews that affect our lives.

Notes

¹See, e.g., David Naugle, *Worldview: The History of a Concept* (Grand Rapids, MI: Eerdmans, 2002).

²Albert Wolters, *Creation Regained*, 2d ed. (Grand Rapids, MI: Eerdmans, 2005).

³Brian J. Walsh and J. Richard Middleton, *The Transforming Vision: Shaping a Christian Worldview* (Downers Grove, IL: InterVarsity Press, 1984).

⁴See my “Evangelicals and Worldview Confusion,” in *After Worldview*, ed. J. Matthew Bonzo and Michael Stevens (Sioux Center, IA: Dordt College Press, 2009) for the fuller case.

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KNOWING CHRIST TODAY: Why We Can Trust Spiritual Knowledge by Dallas Willard. New York: HarperOne, 2009. 245 pages, index. Hardcover; \$24.99. ISBN: 9780060882440.

Dallas Willard, author of a number of best-selling books on Christian discipleship and spiritual formation, is also a first-rate philosopher. *Knowing Christ Today* combines philosophical insight with pastoral sensitivity in a book geared for the general reader. His central concern is with the isolated status of spiritual knowledge. In particular, Willard is disturbed by “the trivialization of faith apart from knowledge,” as well as “the disastrous effects of a repositioning of faith in Jesus Christ ... outside the category of knowledge” (p. 1). The upshot of the restricted understanding of knowledge widely held today is that Christians are urged “to treat their central beliefs as something other than knowledge—something, in fact, far short of knowledge” (p. 1). Core Christian beliefs are demoted to the status of opinions or blind commitments that are dismissed on the public stage, particularly in the academy, as being largely irrelevant. This state of affairs has been noted by others. But what is profoundly troubling to Willard is that the decoupling of belief and knowledge has pernicious effects on Christian faith and practice: it undermines the spiritual lives of Christians. “A life of steadfast discipleship to Jesus Christ,” he asserts, “can be supported only upon assured knowledge of how things are, of the realities in terms of which that life is lived” (p. 7).

Willard’s exploration should be welcomed on a number of levels. He correctly points out that, in today’s academy, methodology seemingly dictates both epistemology and ontology. Science has become the presumed authority on public knowledge, but too few—especially the new atheists—recognize its fundamental limits. Science cannot

provide “scientific knowledge of science” (p. 59). Regrettably, knowledge has been redefined and restricted so as to exclude the kind of moral knowledge that for centuries was understood as knowledge of reality that guided efforts to answer life’s fundamental questions. We have witnessed “the removal of [heretofore] recognized values and principles of Christian/traditional moral understanding ... from the domain of knowledge that must be taught by the knowledge institutions of Western society” (p. 71). As a result there has been a “triumph of desire over good at the public level” (p. 70). And moral standards are seen as “mere displays of social and economic power” (p. 79).

Willard contends that modern believers can “know Christ.” Such knowledge, moreover, has as much authority—indeed, more—as that generally accorded to the academic disciples. He effectively argues for the existence of nonphysical reality and points out that the new atheists have “a haunted universe on their hands” (p. 109). In addition, he makes a brief case for the plausibility of God’s existence and the possibility of divine action. His thinking is informed by some of the best work coming out of the ongoing science-and-religion conversation.

What makes this book so valuable, however, is Willard’s linkage of an essentially philosophical argument to the quest for a more authentic spiritual life. Ultimately, we know Christ by acquaintance—“direct awareness of him and his kingdom” (p. 142). This interactive knowledge comes when we welcome God “into every dimension of our character and life” and “abandon ourselves to a total transformation of *who we are on the inside*, to taking on the character of Christ through living with him day by day and hour by hour” (p. 152). This is not some irrational leap of faith. It is *real* knowledge, confirmed experientially again and again over the centuries.

Willard has some strong closing words—necessarily so, I suspect—for institutions of Christian higher education and their faculties. They must discard the outlook fostered in graduate training, that “genuine knowledge is secular” in nature and that “being a follower of Christ is simply a matter of what one believes and feels, a ‘personal preference’ ... not something essentially involving knowledge of truth and of a reality that everyone must come to terms with ... Only when ‘faith’ is understood to deal with things that can be known, only when faith is at home with knowledge,” he asserts, “does the project of integrating ‘faith and learning’ have a manageable sense” (pp. 207–8).

While there is much more subtlety to *Knowing Christ Today* than this brief review can convey, some academic philosophers no doubt will accuse Willard of oversimplification. It should be noted that he has a more scholarly treatment, tentatively titled *The Disappearance of Moral Knowledge*, in the offing. That said, there is much to be gained from this accessible volume. As we have come to expect from Dallas Willard, it is a wise book whose argument is both analytically provocative and saturated with rich spiritual insight.

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Book Reviews

PURPOSE IN THE LIVING WORLD? *Creation and Emergent Evolution* by Jacob Klapwijk. New York: Cambridge University Press, 2008. 311 pages. Paperback; \$24.99. ISBN: 9780521729437.

Jacob Klapwijk, Professor Emeritus in the Department of Philosophy at the Free University of Amsterdam, offers a valuable philosophical analysis of evolutionary biology and of the faith perspectives present in discussions of evolutionary biology. The central thrust of Klapwijk's book is to provide an alternative theory of evolution to the Darwinian theory of evolution that is aimless and purposeless. The quest for meaning, according to Klapwijk, represents a general human interest—one could really say it represents the human condition. Thus, a starting point for Klapwijk is the judgment that "a theory of evolution that trumpets forth the view of an evolution that is totally due to chance has, in the final analysis, little or nothing to do with truth, and everything with imposing behavior and survival" (p. 7). Klapwijk thereby seeks to develop an alternative theory of evolution that is empirically based, yet also provides a meaning perspective on the living world. Klapwijk bases his alternate theory of evolution on the recognition of a multilevel ontology.

One of the fundamental problems that contributes to the ongoing discussion in debates among evolutionary biologists, intelligent design theorists, and many creation theorists is that most of the theorists assume a one-level ontology. At the foundation of these views is the fundamental notion that reality is essentially physical and chemical in nature. This reflects an underlying physicalism shared among the various diverging perspectives. But a one-level ontology really falls short in providing an adequate account of reality. Physicalist one-level ontology leads one to a forced reductionism that lacks the requirements for an explanation of the complex life phenomena that we experience among and within living things. The intelligent design theorists correctly recognize the shortcomings of this physicalist framework as an explanation of life phenomena. This is especially so in their analysis of irreducibly complex systems. But the arguments presented by intelligent design theorists for a non-natural intelligent design cause fail to provide an adequate account of life phenomena that are indeed inherently complex. As Klapwijk argues, life phenomena are themselves natural, but natural as understood within a multilevel ontology. "Intelligent design" is not logically one of the levels in this multilevel ontology.

In his analysis of evolutionary theory, Klapwijk makes an important distinction between evolutionary theory and evolutionary naturalism. The failure to make such a distinction leads to intertwining theory and ideology. The ideology of evolutionary naturalism, he claims, is based on two postulates: (1) a fundamental continuity between nonliving and living beings; and (2) all nonphysical phenomena are reducible to physical phenomena. These two postulates, in turn, greatly influence what the concept of evolution contains or even what it excludes. This is illustrated in his discussion of the so-called "mechanisms" of competition, variation, selection, and transmission (he refers to these as the CVST principles). The CVST principles, Klapwijk argues, are not mechanical operations of matter that lead to life, but rather they are functional aspects of life itself. The CVST principles presume the

existence of life; they do not lead to living things from inanimate matter. Thus, CVST principles are biological principles, not physical principles that are mechanistic in nature. Furthermore, these biological principles cannot be derived from physical principles; nor are they reducible to physical principles. How does this apply to theories of the origin of life? This entails the key distinction between necessary and sufficient conditions. Chemical processes are necessary for life phenomena, but they are not sufficient for the origin of life phenomena. The reductionist postulate leads to a view of living things such that living things are devoid of purpose or meaning. The meaning or purpose of living things cannot be found in chemical and physical processes that constitute a lower ontological level. Rather, the meaning or purpose originates in the higher ontological levels of living beings.

The continuity principle also hinders the development of a conceptual framework that fosters a deeper understanding of biological ordering principles. Biological principles provide for the functionality in the many levels which living things express. A biological way of thinking is more functionalistic, concerned with the "for which," rather than instrumentalistic, that is, concerned with the "how" of a mechanistic way of thinking. The recognition of a multilevel ontology entails a fundamental discontinuity of the ordering principles for each ontological level. Each level is determined by ordering principles (laws) that are not reducible to the ordering principles at lower levels and that are not derived from the lower level principles. In reference to these ordering principles, Klapwijk distinguishes between idionomy (having laws of its own) and autonomy (setting its own laws). This correlates with the recognition of a hierarchy of ontological domains in which all living things participate. Klapwijk distinguishes four ontological domains: physical, biotic, vegetative, and sensitive. The ontological domains are not reducible to lower domains. Each domain is idionomic and thus possesses a different causality, a causality that is not reducible to the causality of a lower level. Each ontological domain has its own explanatory theories.

The recognition of ontological domains does not, however, explain how these domains originated. It is here that Klapwijk introduces his particular notion of emergent evolution. He accepts the basic framework of phylogenetic evolution and the idea of descent with modification. But he redefines modification as the emergence of new modalities, as new modes of being that resulted from an emergent process involving a reprogramming of ordering principles into a new level of ordering principles that are not reducible to the entities of the lower domain. Klapwijk emphasizes that this idea of emergence is not an explanatory theory; rather, it is a framework in which the theories of different explanatory levels with their respective ordering principles provide a deeper explanation of purpose and meaning in the living world.

In developing a theory of emergent evolution, Klapwijk does so in the context of a deep belief in a biblical creation. His belief in creation provides the conceptual framework for accepting the basic findings of evolutionary science, including the common ancestry of living things. He accepts Augustine's view of time itself as a creature of God and thereby rejects the notion that the drama of creation occurred in time. He therefore rejects all biblical interpre-

tations that attempt to place God's creative works within a framework of time.

I commend this work by Klapwijk as an important contribution in cutting through the impasse in the ongoing dialogue among creationists and evolutionists and those who affirm some type of theistic evolution. Klapwijk introduces many fresh insights, but most importantly, he provides a conceptual framework for a deeper understanding of the nature of living things that also leads to a deeper understanding of meaning and purpose in the living world.

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WITHOUT NATURE? A New Condition for Theology by David Albertson and Cabell King, eds. New York: Fordham University Press, 2009. 469 pages, index. Paperback; \$39.00. ISBN: 9780823230709.

It is the nature of most birds to fly. It is ethical to intervene to restore that nature by repairing a broken wing. Would it be ethical to intervene to change that nature? This book is a discussion of how ecological changes and genetic manipulation might shift both the "understanding and valuation of nature" and "how alterations of nature impact theological categories" across disciplines. Such Christian-based interdisciplinary dialogue in bioethics has been seen in anthologies such as *Viewing New Creations with Anabaptist Eyes: Ethics of Biotechnology*, edited by Roman J. Miller, Beryl H. Brubaker, and James C. Peterson in 2005. *Without Nature?* is a welcome addition to that type of discussion in its drawing from a wide disciplinary base to then focus on a formative question.

The book explores five disciplines in relation to nature: ecology, genetics, geography, anthropology, and theology. In each section, three authors examine how ecological collapse or genetic engineering might affect the nature of "nature" and might accordingly invoke attention to related elements in each discipline. The first essays in each category speak from philosophical and essentialist perspectives of nature and maintain negative views regarding the advancement of technology and biogenetics. In contrast, the third essays address, from a Protestant and non-essentialist approach, nature as always in flux, and so are more open to the humanitarian use of such engineering. The second essays, often from Catholic approaches, hold perspectives that share some of both.

Multiple contributors, specializing in areas such as philosophy, ethics, science, anthropology and urban planning as well as theology, make this book highly informative. It extensively covers the context and issues that revolve around ecology and biotechnology, including technical details, politics, economics, social science, and philosophical development, in order to inform ethical and theological discussions.

The book reveals how the concept of nature plays a vital role in the discussion of technological and genetic interventions as a determinative element regarding development and direction of the interventions. By juxtaposing three contrastive views, the book illuminates how differ-

ent views of nature might affect one's ethical views toward technological and bioengineering advancement.

The book's editors describe themselves as students of Kathryn Tanner, those who understand human nature to be dynamic, as in Eastern Orthodox thought. They persistently contrast this position with essentialist views of nature that argue from secular philosophical perspectives such as those of Aristotle and Nietzsche. However, this might lead to an impression that philosophical views and Protestant Christian views are always polarized in terms of the view of nature and attitudes toward technology, which is not necessarily the case. To assist readers in comparing purely philosophical discussions with Christian thought, it would have helped to explain how the former views might inform or conform to the latter.

The editors acknowledge that this book is "an ambitious interdisciplinary agenda." It is, in wrestling with such a polyvalent term as "nature." Admitting the ambiguousness of the term, the authors provide some unique definitions, and the editors organize them by arranging each section around common definitions such as "natural world," "human biological nature," or "human nature." The complexities of the term "nature" warrant further scrutiny; yet despite such challenges, the book clarifies the importance of the understanding of nature for the presented topic.

This edition is beneficial for readers who are interested in ecology, environmental ethics, bioethics, anthropology, and ethics in general. Some knowledge of technical terms may be needed for readers to attempt the section on "genetics and nature." Including a general introduction and conclusion would have been useful to clarify the intent of the book and to summarize its contributions. It is a large and unwieldy volume, yet worth significant effort to hear its varied perspectives.

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CREATURELY THEOLOGY: On God, Humans and Other Animals by Celia Deane-Drummond and David Clough, eds. London: SCM Press, 2009. 294 pages. Paperback; \$45.00. ISBN: 9780334041894.

Creaturely Theology is a collection of thirteen essays exploring the theology (or relationship) of humans and non-human creatures. The question is explored from a variety of theological traditions: Thomistic (John Berkman); Lutheran (David Clough); and Orthodox (Esther Reed). Other chapters use a historical figure to focus the question: Athanasius (Denis Edwards); Emmanuel Levinas (Aaron Gross); and Augustine (Rachel Muers). The authors use these historical approaches to suggest a closeness of humans to nonhuman animals. Other essays focus more on the description of human beings as alone being created in the image and likeness of God (one by David Cunningham and another by Celia Deane-Drummond). Some of the essays use prehistory (Stephen Clark), evolution (Neil Messer), or climate change (Christopher Southgate) as a tool to explore the question. Peter Manley Scott's essay imagines a human-animal coalition and its implications.

Book Reviews

Michael Northcott's essay examines the violence animals experience in their connection with humans. This brief summary inadequately describes the diverse investigations of the topics readers will find in the book. It also minimizes the interconnections evident between the essays. Not always "easy reads," the essays are scholarly in nature (603 footnotes in 265 pages plus nineteen pages of references in a bibliography as well as six index pages). Readers will probably select one essay at a time to read and then ponder its approach to the topic rather than read all of the essays at once. They will discover that each essay is a doorway to further study. Each one could serve as the basis for discussion (if the members of the group are professional or interested in scholarly concerns).

Several authors use the recent findings of animal behaviorists to inform their thinking. I found such surveying to be accurate (for further study, readers should look at Sara Shettleworth's new edition of *Cognition, Evolution, and Behavior* [New York: Oxford University Press, 2009]). In addition, biblical texts were often utilized. As a result, my understanding of some of the texts was significantly expanded. The one exception was Michael Northcott's translation of *nephesh* as blood (p. 236) in a context of a moral sensibility regarding animals in ancient Israel. His point was that the sacrificial system enjoined a respect for the lives of animals, but he could have used the Hebrew word for blood instead of *nephesh*, which means breath or spirit. Finally, the essays provide "nuances of argument that are truly valuable" (a phrase from Rolf Bouma's review of Vantassel's book on the same subject matter—see *Perspectives on Science and Christian Faith* 62, no. 1 [2010]: 62). I would recommend *Creaturely Theology* to anyone interested in thinking about the relationship of humans to animals.

While I appreciated the book, it does have its challenges. The title is poorly phrased. The editors define "creaturely theology" as "engaging in the theological task conscious of one's creatureliness" (p. 1). This definition certainly describes the agenda of the essays, especially if one subscribes to a broad use of the word theology. Nevertheless, it could have been entitled better, something similar to *Interdisciplinary Perspectives on Animals and Theology*. The reader would then have a clearer idea of the book's subject matter. Another lingering irritation is the lack of closure. I am used to scientific papers closing with a discussion of what the results mean. Often future research is indicated, but I leave the article with the impression of another brick added to the scientific edifice. These essays often open with reasons to question a position and then close by outlining possible routes to explore in the future. The book ends with an editorial postscript setting out five different areas for further research. This lack of closure may reflect the complexity of the question, but it is disconcerting for readers such as myself who expect conclusions to provide answers and not just more questions. Finally, the essays seek to minimize the distance between humans and other animals. While this may represent the current thinking of many people, I (and perhaps readers of this journal) will continue to suspect the existence of an intangible, qualitative difference between humans and other animals. Nonetheless, the arguments presented are thoughtful and thought provoking. If I were asked to present on this topic, having read *Creaturely*

Theology, I would note both the objective certainty that humans are animals and the subjective possibility of humans surpassing animals.

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RELIGION & SCIENCE

EMINENT LIVES IN TWENTIETH-CENTURY SCIENCE AND RELIGION, 2d rev. and much expanded ed. by Nicolaas A. Rupke, ed. Frankfurt am Main: Peter Lang, 2009. 371 pages, index. Paperback; \$70.95. ISBN: 978-3631581209.

There have been many recent books by scientists, some of whom are also theologically educated, that reflect on faith in the first person. A short list would include R. J. Berry, ed., *Real Scientists, Real Faith* (Monarch Books, 2009); Charles Birch, *Science and Soul* (Templeton Foundation Press, 2008); Philip Clayton and Jim Schaaf, *Practicing Science, Living Faith: Interviews with Twelve Leading Scientists* (Columbia University Press, 2007); Celia Deane-Drummond, *Christ and Evolution* (Fortress Press, 2009); Lawrence Fagg, *Electromagnetism and the Sacred* (Continuum, 1999); Owen Gingerich, *God's Universe* (Belknap Press of Harvard University Press, 2006); Alister McGrath, *A Fine-Tuned Universe* (Westminster John Knox Press, 2009); John Polkinghorne, *The Faith of a Physicist* (Augsburg Fortress Press, 2005); Mark Richardson, Robert J. Russell, Philip Clayton, and Kirk Wegter-McNelly, eds., *Science and the Spiritual Quest: New Essays by Leading Scientists* (Routledge, 2002); and Joan Roughgarden, *Evolution and Christian Faith: Reflections of an Evolutionary Biologist* (Island Press, 2006).

Rather than autobiographical reflections, *Eminent Lives* offers a collection of scholarly case studies of the relationships—some robust, others rather less so—between scientists and their religious upbringings, values, beliefs, and/or practices. This is biography not as apologetics but as critical, contextual, narrative examination of particular lives, complete with helpful bibliographies.

The first edition, reviewed in the March 2008 issue of this journal by Owen Gingerich, focused on eight figures: Arie Leegwater on Charles Coulson, Jitse van der Meer on Theodosius Dobzhansky, James Moore on Ronald Fisher, Peter Bowler on Julian Huxley, Richard Beyler on Pascual Jordan, Torsten Rüting on Ivan Pavlov, Edward Davis on Michael Pupin, and Mark Stoll on Edward Wilson. These interesting and revealing portraits were framed by the editor Nicolaas Rupke's historiographic introduction to the craft of writing biographies—see also his superb metabiography of Alexander von Humboldt (University of Chicago Press, 2008) and *Richard Owen: Biology without Darwin*, the revised edition of his 1994 study of the Victorian naturalist (University of Chicago Press, 2009) for examples—and by Ronald Numbers's nuanced epilogue on science and secularization, including the retreat of God-talk from public to private life. All this in 255 pages, originally for \$49.95.

According to Rupke, this second edition is "significantly expanded and corrected" (p. 8). Revisions to the

first set of essays are not indicated, but there are five new chapters to expand our understanding of the faith-and-science landscape in the twentieth century. Mark Stoll (who, following Michael Ruse, uncovered E. O. Wilson's "inner Baptist") discerns a Presbyterian ethos in the American naturalist Rachel Carson's writing, including her "secular sermon," *Silent Spring*. Jason Rampelt explores how the noncreedal, antidogmatic Quaker religion of the English physicist-astronomer Arthur Eddington affected both his philosophy of science and his research program; see also Matthew Stanley's *Practical Mystic: Religion, Science, and A. S. Eddington* (University of Chicago Press, 2007). Einstein's "cosmic religion" is well known, rooted in childlike wonder, Spinoza's pantheism, Jewish ethics, and expressive of scientific convictions about the physical world. Gebhard Löhr seeks also to open up the question of Einstein's religion in relation to non-Western perspectives such as Buddhism, which also rejected a personal God. Edward Davis, in addition to his groundbreaking chapter on the Serbian Orthodox physicist Pupin, discusses Pupin's student Robert Millikan, that giant of American physics, who left behind his Congregationalist past, along with the God of the Bible, but who still espoused a Christian vision of science and morality, divine immanence in nature, and a (modernist) rapprochement between science and faith. Millikan believed in both Jesus, the noncreedal preacher, and an Einsteinian "God of Science." Finally, Martin Riexinger shows how and why the Pakistani physicist (and Nobel laureate with Steven Weinberg for their unification of the electromagnetic and weak nuclear forces) Abdus Salam kept his Ahmadiyya Muslim faith separate from his science.

Collectively, these sometimes brilliant, occasionally strained interpretations indicate some of the many ways religious and scientific beliefs and behaviors can interact (or not) in specific circumstances.

Among the basic questions this volume raises is how coherent can a life be when the person's commitments, interests, experiences, values, practices, beliefs, and knowledge span both faith and science? Or, how compartmentalized can a person's scientific and spiritual sides be? On the spectrum from complete integration to outright rejection of either religion or science, some—like the late Stephen J. Gould—seek peace through apartheid: an unsatisfying and unstable position in which "science" and "religion" are separate-but-sovereign in their own mutually irrelevant domains.

Biographies, almost by definition, in creating coherent narratives out of the centrifugal messiness, contingencies, inconsistencies, and continuities of unique, incarnate subjects, tend to impose a kind of order, unity, and teleology on people's lives. To defend a thesis about what a person's life and work meant is to create a kind of fiction, albeit one grounded in documentary evidence. Biographers must consider the roles of place, time, memory, identity, context, class, gender, assumptions, intentions, practices, personality, beliefs and relationships—while leaving room for the odd and unexpected, which can disrupt narrative neatness.

This is difficult work to do well. We perform our lives as much as we live them; we deliberately conceal as well as disclose ourselves. And we contain multitudes of contradictions, themes and variations, even if it all seems

to make sense to us in the living; even if lives lived in the intersecting worlds of faith and science can and do make sense, and real tensions are, at least provisionally, resolved.

I recommend this book to all readers of this journal. Those not interested in historiographical issues will still find lots to learn and enjoy. But was Ted Davis really born in 1944 (p. 355)?

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FOR THE ROCK RECORD: Geologists on Intelligent Design by Jill S. Schneiderman and Warren D. Allmon, eds. Berkeley, CA: University of California Press, 2009. 261 pages. Paperback; \$21.95. ISBN: 9780520257597.

Discussions of intelligent design (ID) typically revolve around the remarkably fine-tuned features of the cosmos or the stunning, allegedly irreducible, complexity of molecular structures and processes within cells or biological systems. Ordinarily ID takes us into the realms of cosmology and biochemistry. Why then, one might inquire, are geologists concerned about ID? The obvious concern expressed by the contributors to this volume about the inroads of ID comes into focus when we learn that most of the ten writers are paleontologists. Paleontologists (including Christian paleontologists), of course, overwhelmingly endorse the theory of biological evolution primarily by natural selection, a theory held in low repute by aficionados of ID. As a result, these geologists view the efforts of ID proponents, to introduce their view of science into public education, with alarm, and they express concern about the potentially detrimental effects of ID upon the scientific enterprise.

The main text of *For the Rock Record* consists of three sections. Part One (Rocks and Bones) focuses on scientific matters. Jill Schneiderman, one of the editors, leads off by demonstrating the inapplicability of ID to inorganic geological features. To do so, she explains, in terms of natural geological and chemical processes, both the development of the geology of the New York City area and spiral inclusion trains in metamorphic minerals.

In Chapter 2, Timothy Heaton, a Quaternary paleontologist, summarizes "Creationist Perspectives on Geology," including young-Earth creationism, progressive creationism, and Intelligent Design. Given the primary allegiance of young-Earth creationists to the authority of Scripture over that of scientific investigation in regard to Earth's history, Heaton judges that "young-Earth creationism must be ruled nonscientific at its foundation." Even so, he credits young-Earth advocates who have impressive scientific credentials with at least having attempted to construct testable models of Earth history. Moreover, Heaton recognizes that they generally seek for natural explanations for Earth's natural features and events even though their explanations fail rigorous scrutiny. He notes the irony of the invocation by proponents of a young Earth of "periods of hyperevolution ... to explain the diversity and character of species" after the Flood. Heaton's analysis of progressive creationism focuses on astronomer-apologist Hugh Ross, an advocate of an old universe and of strictly natural explanations for geological and astronomical phenomena.

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Ross, however, inconsistently invokes supernatural explanations for biological events because of his distaste for evolution. Heaton attributes Ross' inconsistency to his close familiarity with astronomy coupled with a corresponding lack of expertise in biology. He interprets Ross' mixture of empirical data and Scripture as an arbitrary blend of science and religion and finds that his hunt for fine-tuning in nature leads to outlandish examples bordering on "pure fantasy." Heaton notes that most ID advocates (and Ross might well have been included in this category, too) accept long geological ages. On the whole, he perceives that ID advocates pay little attention to geology, arguably because they "have unwittingly selected examples lacking a fossil history in their search for 'gaps' in structural development." Heaton faults ID proponents for adopting the strategy of placing the burden of proof on advocates of natural processes rather than on themselves. As those seeking to shake up the current scientific order, it is the school of ID that needs to put forward some credible theories.

The third chapter, "Missing Links Found," by vertebrate paleontologist Donald Prothero, concisely summarizes fossil evidence for evolution among several vertebrate lineages, primarily horses, rhinos, camels, whales, and elephants. Like Heaton, he chides ID advocates for generally ignoring the fossil record, and he delights in pointing out their obvious lack of paleontological credentials and experience. Prothero takes *Pandas to People* to task for insisting on a lack of transitional fossils, a claim that he regards as nonsense in view of the wealth of evolutionary lineages. Those whose appetites are whetted by Prothero's summary of evolutionary transitions in the fossil record will do themselves a favor by digesting his recent book *Evolution: What the Fossils Say*. Unfortunately, rather than letting the overwhelming fossil evidence for evolution speak for itself, Prothero tends to level pejorative language at those with whom he disagrees. Little is to be gained by accusing young-Earth creationists, for example, of lies and deliberate deception.

The final chapter in the first part, "Pigeon-Holing the 'Dino-Birds'" by Allison Tumarkin-Deratzian, a specialist in bone growth in tetrapods and ceratopsian dinosaurs, examines aspects of the lineage that records the transition from theropod dinosaurs to birds. In the process, Tumarkin-Deratzian deftly demolishes four kinds of arguments that anti-evolutionists employ to "contest the relationship of *Archaeopteryx* and the feathered dinosaurs to the evolution of birds." She convincingly demonstrates that these anti-evolution arguments are based on a failure to recognize that, because it was designed to classify modern organisms into categories, the Linnéan classification scheme is ill equipped to recognize evolutionary lineages. Because of its mixed bird and reptile characters, she claims, *Archaeopteryx* defies attempts to fit neatly into the Linnéan classification, based as it is only on modern forms. Tumarkin-Deratzian also points out that "confusion over what a cladogram is and is not lies at the heart of the most common critiques of evolutionary portrayals of bird origins." Anti-evolutionary arguments are based on a failure to understand that cladograms neither depict genealogical ancestor-descendant relationships nor recognize Linnéan class boundaries. To correct the misunderstandings she presents a very clear explanation of cladograms. Despite

the fact that the numerous feathered dinosaurs unearthed in China are actually younger than *Archaeopteryx* and are, therefore, not its ancestors, Tumarkin-Deratzian confidently asserts that "the discovery of feathers in non-avian theropod dinosaurs has shown that feathers are actually a shared primitive character of birds, and a shared derived character of a larger group that includes both birds and several lineages of small theropods."

Part Two (Education, Politics, and Philosophy) also contains four chapters. In Chapter 5 ("Pangloss, Paley, and the Privileged Planet"), Mark Terry, head of the Science Department at the Northwest School in Seattle, acknowledges the appeal of ID to the general public inasmuch as it feeds on the American passion for free speech, fair play, and the underdog. Nonetheless, because of the desire expressed in the ID movement's Wedge Document of establishing Christian principles at the center of American life by way of changing public school science education, Terry sees a threat to that education. After reviewing examples of the application of the Wedge strategy in *The Privileged Planet* by Guillermo Gonzalez and Jay Richards and an article by Marcus Ross in *Journal of Geoscience Education*, Terry warns teachers to be on the alert for the Wedge strategy. "It would be wrong to suppress ID as a religious idea," he notes, "but not suppressing a religious idea and labeling it science are two different things." Terry's hope for Earth science education is that instructors "need to teach Earth science as science, to be clear about what science is and what it isn't, and to hope that this understanding grows into the consciousness of new generations of lawmakers, school board members, parents, and teachers."

Charles Mitchell, a graptolite expert, focuses on the methodology for acquiring knowledge in the natural sciences in contrast to the epistemology of religion in "It's Not about the Evidence." He claims that ID starts from a clearly philosophical/faith basis rather than a scientific basis and then wants to redefine science by introducing final causes to suit its own philosophical-religious goals. Mitchell argues that "final cause just isn't accessible to the same degree" in the scientific approach as are efficient, material, and final causes, because these latter three are relatively much more objective. For him, "science and spirituality serve very different purposes and hinge on very different underlying metaphysical presuppositions." To his credit, Mitchell repudiates the atheistic inferences of Dawkins, Provine, and Dennett. He comments that even if such theories about the non-existence of God and purpose were true, nevertheless, "scientific knowledge cannot exclude what it is not constructed to encompass, and scientific knowledge is constructed entirely within the domain of natural causes." He perceptively points out that "people who believe the world contains no ultimate purpose adopt their atheism because of some prior commitment."

ASA's own Keith B. Miller addresses the "Misguided Attack on Methodological Naturalism" in Chapter 7. Miller, whose interests focus on paleoecology and stratigraphy, skillfully brings out the fact that numerous ID advocates fail to appreciate the crucial distinction between naturalism as a species of ontology and epistemology and naturalism as a general methodology that enables the natural sciences to proceed and succeed. By way of several

examples from the effort to rewrite Kansas science standards, objections to the national science standards, the Dover ID trial, and the writings of Phillip Johnson, Miller shows that a central element in ID arguments is the misguided conflation of methodological naturalism with philosophical materialism, with the result that contemporary science is portrayed as being biased toward atheism. He rightly asserts that “from the perspective of scientific inquiry, a supernatural agent is effectively a black box, and appeals to supernatural action are essentially appeals to ignorance.” Because a “supernatural agent is unconstrained by natural laws,” it can act any way it chooses and, therefore, “appeals to such agents can provide no insight into understanding the mechanisms by which a particular observed or historical event occurred.” For Miller, appeals to action of a supernatural agent are really admissions that “we don’t know” how an event occurred, and they have the effect of killing further investigation.

In Chapter 8, “*On the Origin of Species* and the Limits of Science,” according to David Goldsmith, a paleontologist with expertise on the morphology and ecology of mollusks, the attempt of the ID movement to redefine the limits of scientific methodology is nothing new. Goldsmith points out that Charles Darwin challenged the scientific community to rethink scientific methodology by his use of a deductive approach in advocating his theory of natural selection. Until Darwin, scientists (Bacon, Newton, the Geological Society of London) typically claimed to eschew the formulation of hypotheses and favored patient accumulation of facts from which a reasonable theory might eventually emerge. In contrast, in *On the Origin of Species*, Darwin laid out his theory of natural selection and then asked what the world would look like if the theory were correct. His book contained no experimental results and proposed no experimental tests. Rather, Darwin asserted the adequacy of selection to effect biological change, then supported this assertion through numerous lines of observation, and finally refuted potential objections to his hypothesis. In part, the way was paved for the ultimate reception of Darwin’s idea by the fact that a deductive approach in science was already being promoted by philosophers of the stature of Whewell and Mill. In light of that historical reality, Goldsmith suggests that, although ID advocates, like Darwin, would like to expand scientific methodology, no one has independently and antecedently proposed *their* methodology. Moreover, proponents of ID have failed to convince the scientific community that the ID approach bears any potential scientific fruitfulness. Goldsmith condemns the ID movement on the grounds that its program to foster deeper thinking about scientific issues in reality leads to its opposite, namely, repudiation of “deep inquiry and discovery in favor of superficial wonder and mystery.” In line with Miller, Goldsmith believes that “accepting the role of a potentially capricious unknowable intelligence in one branch of science undermines not just future discoveries in that one field but all scientific knowledge, past, present, and future.”

Part Three (On Religion) contains the final two chapters. “Teaching Evolution during the Week and Bible Study on Sunday” by Patricia Kelley lays out a personal approach to relating paleontology and Christian faith. Kelley is, like Goldsmith, another mollusk paleontologist

as well as the wife of a Presbyterian pastor. She has also taught adult Sunday Bible classes for many years. Convinced of the reality of biological evolution, in part as a result of her own research on lineages of mollusks from the Atlantic and Gulf coasts of the United States, Kelley finds her Christian faith threatened by neither science generally nor evolution in particular, because she does not accept the notion that the biblical creation accounts are to be interpreted literally. In essence, scientific discoveries and the Bible tell the same story but in different ways. Readers will enjoy her personal story, but some may not be willing to follow her in accepting higher critical conclusions about Genesis 1–2.

Editor Warren Allmon, yet another paleontologist, concludes with the longest chapter. Here he lays out an overview of what he calls the “God spectrum”—a gradational series of possible ways of dealing with the relations between religion and science from complete hyper-supernaturalism at one end to complete naturalism of *The God Delusion* type at the other end. In between are a variety of ways in which religion and science might accommodate one another. Of particular interest is his summary of the approaches to accommodating religion and science to one another that have been adopted by three prominent paleontologists: Peter Dodson, Patricia Kelley, and Richard Bambach. Allmon recognizes that religion encompasses a vast and very diverse terrain of belief and that some religions may simply be incompatible with science. As a result, he focuses specifically on Judaism, Christianity, and Islam and explores accommodation in that context.

For the Rock Record includes a list of selected resources (books and websites) for further study. The cover of the paperback version offers a magnificent photograph of the world-famous angular unconformity discovered in the late 18th century by James Hutton at Siccar Point in Scotland. The book is a constructive contribution in that it provides an assessment of intelligent design from the vantage point of the geological sciences. The authors are to be commended for adopting a generally positive stance in regard to the practice of religion, for their fair treatment of Christian believers, and for their recognition that it is not the role of science to solve theological and religious questions. On the other hand, what one misses is an understanding (although hinted at by Allmon) that religion and science are not simply two parallel, equal-value but different approaches to knowledge, but that the scientific approach to knowledge is invariably and unavoidably subservient to each individual scientist’s religious worldview.

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GOD IS GREAT, GOD IS GOOD: Why Believing in God Is Reasonable and Responsible by William Lane Craig and Chad Meister, eds. Downers Grove, IL: InterVarsity Press, 2009. 262 pages, bibliography, index. Paperback; \$19.00. ISBN: 9780830837267.

This September, Mary will enter college. Mary’s parents have lovingly raised her in a traditional Christian home. She has been part of the family’s church since her “cradle roll” days, was confirmed, sang in the choir, was active in

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her youth group. Mary is about to experience a sea change. In college, she will encounter a diversity of worldviews, philosophies, learned professors, and other young people who seem to “have it all together,” who challenge her with questions and claims she had never before considered, in particular, the views of Richard Dawkins and the “New Atheists.” Some of the new ideas will seem very plausible over a late night pizza party. Mary needs help!

This book appears to have Mary as its primary target audience. Fourteen authors contribute essays to address what they believe are her main concerns. Some of the writers are very good, John Polkinghorne and Alvin Plantinga being particularly outstanding. Unfortunately, the book fails to meet its objective on many counts.

First, it overreaches, presenting a “Reader’s Digest” of philosophy and Christian theology, attempting to address all the important questions from atheism’s refutation to a defense of traditional Christianity. The objective is admirable; but it was not achieved in 236 pages.

Second, the book includes a defense of intelligent design (ID) by Michael Behe, who confidently writes, “That should have been the end of Darwinism’s strong claim right there—to explain all of life as the product of random mutation and natural selection—but intellectual inertia and wishful thinking kept it going” (p. 82). His argument is unpersuasive and Mary will have trouble in biology class if she takes it seriously. The implication is, of course, that a Christian must necessarily embrace ID.

Third, the last essay, by author Mark Mittelberg, is an unconvincing “altar call.” His recommended bibliography includes a book by Josh McDowell, who not long ago was preaching young-earth creationism.

Fourth, the book does not end with Mittelberg’s sermon, but adds a postscript. In it, Antony Flew argues his case for simple theism. Following Flew is an appendix by Alvin Plantinga. These two articles seem seriously out of place.

Fifth, the essay by William Lane Craig contains a particularly inept argument against Dawkins’ idea that the universe “just popped out of nothing.” Craig’s argument (p. 14) seems to be as follows: (a) It is a necessary truth that something cannot come from nothing; (b) The very idea of something else is resorting to magic; (c) If one thing popped out, why are there not other things? (d) Our experience confirms that everything has a cause. These arguments can also be used, of course, to “refute” some of quantum mechanics.

Craig also attacks the person of Dawkins. He describes him as “marvelously oblivious” (p. 19), “laboring under the delusion” (p. 23), “apparently unaware” (p. 25), “smug and self-congratulatory” (p. 28), and imagines Dawkins as “making a silly ass of himself” (p. 30). It may be argued that Dawkins deserves such treatment, but Col 3:12 refutes that argument. I do not want Mary to read that kind of stuff and possibly conclude it is OK for a Christian.

There are other defects in the book, such as no discussion of natural evil, a reliance on only Euro-American writers, and no feminist, Afro-American, Hispanic, or Asian voices. Scot McKnight commits a serious blunder, repeating one of C. S. Lewis’s rare errors when he writes,

“either the disciples are liars or they are truth-tellers” (p. 200). And some other writers seem to delight in “digging” Richard Dawkins; one of them, Michael Murray, makes the gratuitous aside that Dawkins was on his second marriage (obviously moral turpitude).

I believe that acceptance of Christ usually happens through social interactions with real Christians, not as an intellectual process. Skip the book. If you do buy a copy, do not give it to Mary. She will get hurt.

Reviewed by John W. Burgeson, Houston, TX 77070.

THE FALL OF MAN AND THE FOUNDATIONS OF SCIENCE by Peter Harrison. New York: Cambridge University Press, 2007. xi + 300 pages, bibliography, index. Paperback; \$43.00. ISBN: 9780521117296.

For man by the fall fell at the same time from his state of innocence and from his dominion over creation. Both of these losses however can even in this life be in some part repaired; the former by religion and faith, the latter by arts and sciences. For creation was not by the curse made altogether and forever a rebel, but in virtue of that charter, “In the sweat of thy face shall thou eat bread,” it is now by various labors (not certainly by disputations or idle magical ceremonies, but by various labors) at length and in some measure subdued to the supplying of man with bread, that is, to the uses of human life.

—Francis Bacon, *Novum organum* II, §52

Few scientists today would take these words from Francis Bacon as foundational to modern science, but they were. In this fascinating, original, and carefully researched book, historian Peter Harrison argues that the biblical story of the Fall deeply influenced concepts of scientific knowledge and how it ought to be obtained during the seventeenth century, when science as we now know it took shape. According to many early modern writers, Adam’s knowledge of the natural world prior to the Fall was very extensive and fully accurate, reflecting the fact that he had been made in the image of God. Most of that was lost after the Fall, which affected all aspects of human nature at least to some extent. Thus, “the standard pattern for early modern epistemological enterprises,” Harrison says, involved “self-examination, assessment of the extent of the wound caused by sin, [and] determination of what traces of the divine image remain” (p. 99).

European thinkers had inherited from the Greeks the idea of science as demonstrably certain knowledge, obtained by the methods of Aristotelian philosophy. During the Scientific Revolution, a debate took place over how much of the traditional view of knowledge needed to be discarded: was it simply the method that needed to be replaced, or did the certainty of scientific knowledge also need to be discarded? For some, such as Philipp Melancthon, Johannes Kepler, and Galileo Galilei, fallen humanity still retained enough of the divine image to guarantee the veracity of mathematics; science could still achieve certainty through a priori demonstration, especially through mathematics, which Aristotle had largely ignored. For others, especially Bacon, Robert Boyle, and many other Englishmen, the whole project of natural philosophy had to be rebuilt from the ground up; our minds

were not sufficiently reliable to achieve certainty, and the best we could do was gradually to accumulate empirical facts, slowly recovering bits and pieces of the knowledge that Adam had so suddenly lost.

Harrison has never hesitated to tackle the big historical questions, and this is one of the biggest: was the Scientific Revolution a deeply secularizing episode, with progressive reason emerging triumphant over backward and recalcitrant religion? What I have just described was the standard picture a generation ago, but in recent decades, dozens of scholars have shown its many serious flaws. Harrison pretty much demolishes any residual tendency to give the seventeenth century an eighteenth-century, Enlightenment-style interpretation: "The birth of modern experimental science was not attended with a new awareness of the powers and capacities of human reason, but rather the opposite—a consciousness of the manifold deficiencies of the intellect, of the misery of the human condition, and of the limited scope of scientific achievement" (p. 258). To be sure, many modern minds are still afflicted with what Harrison calls "a degree of historical amnesia about the role of religion" in the origins of modern science (p. 245), but there is no way to escape the force of his argument without ignoring the wealth of primary sources he musters to support it. No one can fairly accuse Harrison of being too clever, of playing fast and loose with the words and ideas of the historical actors themselves. His command of their world is admirable, his argument subtly nuanced, and his account almost breathless. Intellectual history of this quality is all too rare, and when it involves a subject of this import, we should all stand up and pay attention. Put this one on your required reading list as soon as you can.

This is not to say that I have no reservations about *The Fall of Man and the Foundations of Modern Science*. As Harrison realizes, he is not the first scholar to assess the ways in which religion influenced early modern science; nor will he be the last. Of the various alternative theses, one of the best known holds that "voluntarist" theology (which emphasizes divine freedom in the creation) was closely linked with empiricism during the Scientific Revolution. On this view, those natural philosophers who stressed God's freedom to act in the world, unbound by restrictions imposed by reason, were more likely to ground scientific knowledge in observations and experiments; whereas those who stressed God's reason were more likely to hold a rationalist conception of scientific knowledge and methods. Several leading scholars have defended this thesis, including John Hedley Brooke, John Henry, the late Reijer Hooykaas, Francis Oakley, and Margaret Osler. Harrison advances a competing claim. Instead of finding the origins of empirical attitudes in views of God's nature, he finds them in views of our own nature—a subtle, but significant, distinction.

Having worked on this problem myself, I will be the first to admit that sometimes it is hard to tell which is more important when a given conception of scientific knowledge is being analyzed. I certainly agree that for many of the figures discussed in Harrison's book, the effects of the Fall on human reason seem more important than the implications of divine freedom, which is usually not even mentioned in the cited passages. Nevertheless, Harrison recognizes that some leading early modern thinkers did

not put too much emphasis on the noetic effects of the Fall. Indeed, Isaac Newton "showed little interest in the Fall of Adam or the doctrine of original sin" (p. 234). Robert Boyle, whom Harrison describes accurately as "undoubtedly the leading exponent of experimental philosophy in the seventeenth century," was "reluctant to attribute all the limitations of human knowledge to Adam's lapse" (pp. 217–8). Instead, in one of the unmistakable features of his thought, Boyle repeatedly appealed to the freedom of the Creator as a foil to any effort to reduce nature to rational necessity.

If Harrison errs by downplaying the role of voluntarist theology, vis-à-vis an Augustinian view of the Fall, it is mainly because he has so much to say about the latter—and all on the basis of hard evidence. His argument might not encapsulate the whole story, but anyone who overlooks it will risk misunderstanding the rich interaction of theology and science at a crucial historical moment: the moment when modern science was born.

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REAL SCIENTISTS, REAL FAITH by R. J. Berry, ed. Grand Rapids, MI: Monarch Books, 2009. 288 pages, index. Paperback; \$14.99. ISBN: 9780825462894.

Robert James (Sam) Berry is a recognized British genetic scientist and environmentalist. Beyond his contributions to the sciences, Berry is also recognized by a broader community for his contributions to topics related to science and the Christian faith. This book, *Real Scientists, Real Faith*, is the second of the same title. The earlier title was also edited by Berry and was published in 1991. In both books, the contributors are primarily British, along with a few Americans.

Real Scientists, Real Faith is a collection of essays, solicited by Berry, on issues in science, the Christian walk, and the relationship of the two. Contributing authors are well-recognized scientists, theologians, and philosophers. Some of the British contributors may be unfamiliar to the American reader, but Americans will likely recognize Alister McGrath and Simon Conway Morris. Familiar American contributors include ASA Fellows Joan Centrella, astronomer at NASA; David Myers, psychology professor at Hope College; Cal DeWitt, founder of the Au Sable Institute and professor at the University of Wisconsin; and Francis Collins, director of the NIH.

Readers may be disappointed that the contribution from Francis Collins is a reprint of an earlier published interview in which Collins restates the story of his coming to Christ, also found in Collins' book, *The Language of God*. The contribution of the late British Donald MacKay is a reprint of one of his earlier lectures. Except for the reprints of Collins and MacKay, the other sixteen contributions appear to be original to this work.

Upon looking at the titles and abstracts, there does not appear to be a conscious progression in theme throughout the collection. Each contributor describes biographic information of his formative years as a scientist and Christian and mentions specific issues within his area of expertise and experience. Issues range from the age of the earth

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and biological evolution to the ethics of abortion, homosexuality, and environmentalism. However, the book may well have a cumulative effect on the reader; each essay leads the reader, even if unconsciously, to a greater understanding of the reality of scientific life and the life of Christian faith.

I expect critics will disagree with various positions expressed in *Real Scientists, Real Faith*. The abortion of a defective fetus in preference to watching the death of a small child and the acceptance of the biological orientation of homosexuality are two likely examples. But to remove ammunition for debate from these pages would be the reader's loss. Though some contributions to the book may not be as well developed logically or theologically as might be hoped, this is not the purpose of the book. If the reader can find strength through the candid discussion of faith-filled struggles with science issues, such that the personal strengths that result from these struggles can be internalized by the reader, then the reader will have gained much.

There are several groups of people who would benefit from reading *Real Scientists, Real Faith*. College students at the beginning of their scientific careers will benefit scientifically and spiritually from the mentoring perspectives of these successful scientists and committed Christians. Older scientists, who have similar experiences as the authors, will also benefit from the reflection and thoughts in this book. Theologians and clergy who are interested in both the formal academic philosophy of science as well as the practical, less formal, working scientific philosophies which contribute to the doing of real science, should read this book. Regardless of the reader, there are both intellectual and spiritual nuggets which can be mined from these pages. If the reader can refine these nuggets into a form that fits their own personal questions of science and faith, they will have obtained a great treasure.

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TIBETAN BUDDHISM AND MODERN PHYSICS: Toward a Union of Love and Knowledge by Vic Mansfield. West Conshohocken, PA: Templeton Foundation Press, 2008. 180 pages. Paperback; \$19.95. ISBN: 9781599471372.

Unlike such 1970s' works as *The Tao of Physics* and *The Dancing Wu-Li Masters*, which were motivated by short-lived 1960s' interpretations of particle physics such as "particle democracy," this book seems to be a serious attempt to compare and contrast essential aspects of quantum theory (e.g., uncertainty and entanglement) with the principles of Tibetan Buddhism. Though Mansfield is a professor of physics, throughout the book he inspires trust that he also knows something about Tibetan Buddhism by sprinkling in references concerning conversations and experiences he has had in his personal acquaintance with the Dalai Lama.

Mansfield begins in chapter 1 by focusing on knowledge, being, meaning, and purpose, in the context of science and Buddhism. I must confess that I found many of the comparisons contrived. For example, he states that in science, the final arbiter is experiment, operating in the "public domain," meaning that experiments must be

repeatable. Then he points to a contrast, the Buddhist concept of *shamatha*: *shamatha* occurs when the mind is focused upon itself. Since "first person accounts ... are not objectifiable or in the public domain" (p. 11), such essential Buddhist practice is different from science. However, he claims that "[s]uch subjective experiences are repeatable and controlled but not conventional scientific objects" (p. 11), and because experience is the focus in both cases, there is a similarity. As to purpose, according to the Dalai Lama, "the purpose of life is to be happy" (p. 16). As we learn later in the book, this principle leads to an ethic of compassion. What does this have to do with science? In contrast to a materialist view of the laws of physics in which no purpose can be found, Mansfield asserts that Buddhism concludes no such thing, because Buddhism includes phenomena that are both subjective and objective, personal and meaningful.

The main point of chapter 2, entitled "Quantum Mechanics and Compassion," is to make an analogy between the indistinguishability of fundamental particles and the fact that all humans find themselves in a similar situation with regard to the purpose of life, in the desire for happiness. According to Buddhism, the desire for happiness is closely intertwined with the freedom from suffering. Though everyone is unique as an individual, *with respect to the desire for happiness and the right to achieve it*, we are all identical (p. 33). Considering exchanging ourselves with one another leads to a kind of golden rule, that we ought to put ourselves in others' shoes and help everyone in the endeavor for happiness and the right to achieve it. Again, the analogy between particles and people is a stretch.

Chapters 3 and 4 are perhaps the heart of the book. In chapter 3, Mansfield introduces us to "Middle Way emptiness" which is a major tenet of Buddhism. The Middle Way doctrine seems to be a way of saying that nothing exists in and of itself, but everything is in relation to many other things. The claim is that if something were to exist independently, having no interactions, it would be an unchanging essence.¹ However, the Buddhist denies the existence of such an essence, and this denial leads to the concept of "emptiness." However, as Mansfield cautions, it is easy to get the wrong idea about "emptiness"; it does not mean "nothing," but rather it is a reference to changeableness, to impermanence, and to dependence. In chapter 4, Mansfield describes the Einstein, Podolsky, and Rosen (EPR) thought experiment, Bell's inequalities, and provides a fairly clear explanation of the phenomenon of entanglement² that follows from these, which he links to the concepts of the "Middle Way" and "emptiness." Perhaps the most telling statement is that because quantum theory seems to tell us that particles do not have definite properties until measured, and the measurements inexplicably affect each other at a distance, "we can clearly see that the mind project[s] independent existence into the particles, but the experimental violation of Bell's Inequalities shows that nature refuses to accept the projection" (p. 90). In other words, we should not impose our ideas of definite properties on independent particles, for that is a projection of our thoughts on a reality that does not fit that experimental picture. The interrelatedness comports well with the Middle Way.

In chapter 5 Mansfield explains his uncomfortableness with the a-causal behavior of the quantum world. He

states that cause and effect is an important principle in Buddhism in that “[o]ur past actions are the causes of our present condition” (p. 98) (think of reincarnation). Given that causes, as things, do not have inherent existence in Buddhism, there is still a notion of the “I,” a “constantly changing mental designation upon the impermanent mind and body” (p. 104) that somehow propagates into the future, carrying its *karma* with it. But why should this nonphysical causality of Buddhism, which is “not susceptible to scientific analysis” (p. 106), be intertwined with the causality as found in the physical realm? That is not clear to me. Incidentally, it may be of interest that he uses the similarity of quantum a-causality to the random mutations in Darwin’s theory to conclude that “there can be no purpose, endpoint, or teleology in Darwinian evolution.” This is a point that many evangelical Christians have made, going back to Charles Hodge in the nineteenth century.

In chapter 6, Mansfield turns his attention toward relativity theory. His main point here is to claim that relativity theory implies that such quantities as mass, length, and time have no independent existence, because there is no preferred reference frame from which to measure them. This, he claims, comports well with the Middle Way. However, I think his claim goes too far. Each object when considered in its own rest frame has definitive rest mass and rest length, which can be considered to be characteristic of the object. Finally, in the summary chapter, he argues that the wave/particle duality is a confirmation of the Middle Way. Thus, he says, in order that knowledge and love may unite, we should not disassociate scientific knowledge from its role in relieving suffering. I guess this is his way of saying that Buddhist science is *human* science, a conclusion Christians might draw for entirely different reasons.

Tibetan Buddhism and Modern Physics is a book that covers a lot of ground, such that a short review cannot do justice to the project that Mansfield has undertaken. However, it also suffers for that very reason. In trying to introduce both the important tenets of modern physics as well as those of Tibetan Buddhism in one short book, I think he fails in introducing either well. There are reasonable discussions of some aspects of physics, such as his introduction to Bell’s inequality and the EPR paradox, but most are cursory and some even suggest misconceptions.³

So when he tells us in chapter 3 that although “physics and Buddhism have significant similarities and differences,” that “[n]evertheless, no other religious worldview has such an arresting and detailed connection to modern physics,” does he make his case? I think not; most Christians would find many of his analogies weak and unconvincing. Though I do not think his “compare and contrast” method is a particularly good way to integrate faith and science, I will say that the book was thought provoking.

Who would want to read this volume? From among the readers of this journal, I would expect that there would be rather few. For those of you who want to keep up with what other religions are saying about science, or who simply like a stimulating recreational read, you might enjoy the book. But if you do not fit one of those categories, and you do not already know a fair amount about both modern physics and Buddhism, you will probably

want to learn both your modern physics and your Buddhism elsewhere. I was left with too many misgivings about how the physics was presented, and with too many questions about Tibetan Buddhism, to recommend this book for either purpose.

Notes

¹In terms of Greek thought, this is reminiscent of Platonic forms.

²Entanglement is the phenomenon well known in quantum theory that the measurement of two particles at different places apparently affect each other instantaneously. So they are said to be “entangled.”

³For example, in chapter 2, he says “indistinguishability leads directly to the famous Pauli exclusion principle (not true — one also needs the fermionic nature of electrons) and in chapter 6, he tells us that an “elevator’s acceleration due to gravity cancels the gravitational force, and the freely falling elevator becomes an inertial reference frame” (gravity — that is, the curvature of space — causes the acceleration, rather than canceling it; by “inertial frame” we usually mean a non-accelerating frame).

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THE FAITH OF SCIENTISTS: In Their Own Words by Nancy K. Frankenberry, ed. Princeton, NJ: Princeton University Press, 2008. xviii + 542 pages, bibliographic references, index. Hardcover; \$29.95. ISBN: 9780691134871.

This volume belongs to a new genre of publication about religion and science. Books in this genre describe the religious faith of past and living scientists. What used to be considered private or sometimes confined to popular writings has become public over the last decade or so. Frankenberry’s book is an anthology of selected writings of twenty-one practicing scientists about their religious faith. Commentary by the editor provides context.

The first eight chapters cover the “founders of modern science” from the mid-sixteenth century to the mid-twentieth century, including Galilei, Kepler, Bacon, Pascal, Newton, Darwin, Einstein, and Whitehead. The second set of thirteen chapters features scientists from the twentieth century to the present, covering Carson, Sagan, Gould, Dawkins, Goodall, Weinberg, Polkinghorne, Dyson, Hawking, Davies, Wilson, Kauffman, and Goodenough.

The introduction explains the main features of the book. It is aimed at the general public including non-specialists, students, and seekers (p. viii). Therefore, the editor has included only working scientists of major historic stature or contemporary public interest who had written about their faith in its relation to their science. Her stated focus on individuals facilitates access to the personal and historical context in which they lived and worked and avoids the distortions that arise when the issues are framed in terms of the abstractions of “religion” and “science.”

Since it is impossible to review each of the twenty-one chapters let me highlight two representative examples of how Frankenberry stimulates further reading. On page 38, Kepler:

A Lutheran, Kepler disagreed with Lutheran orthodoxy and made concessions to both Catholics and Calvinists. On the matter of Communion, Catholics believed that “transubstantiation” physically transformed the wafer and wine into the body and blood

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of Christ. Lutherans explained that “consubstantiation” occurred: Christ’s real body and blood were present even though the bread and wine looked unchanged, because, as divine, Christ’s body and blood become “ubiquitous” and everywhere present. Calvinists held that the bread and wine remained mere bread and wine but provided true communion with Christ, who is in heaven with the Father. Kepler got into trouble for not embracing the “ubiquity” doctrine of his fellow Lutherans.

On page 147, Einstein:

How was Einstein’s determinism compatible with his well-known devotion to justice, humanitarian ideals, and social responsibility, all of which presume at least some degree of free will and indeterminism in the universe? It is far from clear how Einstein reconciled his espousal of determinism with his social and ethical principles.

The project left Frankenberry with two impressions. First, scientists associated with the scientific revolution were able to interrelate their Christian faith and their scientific discovery seamlessly, but “pockets of perplexity, elements of eccentricity and unconventional forms within conventional Christian faith stand out” (p. ix). Secondly, “in contrast to the historical titans, many of the contemporary scientists ... are moved by fresh visions and alternative forms of spirituality” (p. x).

As a popular-level introduction, this book admirably fills a gap between scholarly anthologies such as N. A. Rupke, ed., *Eminent Lives in Twentieth-Century Science and Religion* (rev. and expanded ed.; Frankfurt, DL: Peter Lang Verlag, 2009) and book-length biographies. Frankenberry sets a high standard. Generally, her commentaries succeed in succinctly capturing the excitement of exploring nature in the context of “faith” and in introducing the perplexities that can emerge in the process. She teaches religion at Dartmouth College, and this shows in the quality of the commentary, as in the thoughtful way she captures the complexity of Pascal’s reflections on faith and reason, explains the three versions of Pascal’s wager, and corrects his caricature as an irrational fideist. There is an occasional flaw, as, for instance, in the passage about Kepler and Communion cited above. It is true that for Calvinists the bread and wine remain mere bread and wine, but they do not provide true communion with Christ, who is in heaven with the Father. Rather, the bread and wine are visible reassurances of the spiritual presence of Christ through the work of the Holy Spirit in the participants. On the side of the history of science, the editor fails to point out that it was the impossibility of Jesus’ physical body to be in more than one place simultaneously, that kept Kepler from agreeing with the Lutheran view. On this point, Kepler’s physics affected the practice of his religious faith.

In her scholarly work, Frankenberry defines religion as “a communal system of propositional attitudes and practices that are related to superhuman agents.” This definition would have excluded most contemporary scientists from her list, as their religion is not related to superhuman agents. So in this book she has replaced it with “faith” which she takes in the broadest possible sense. Two advantages accrue. First, it captures views, attitudes, and

stances that function as a religion while not fitting the standard views of religion. This approach allows her to include the creative, the heterodox, and even the antireligious views of scientists. For instance, it allows her to characterize the science of sociobiologist E. O. Wilson as “akin to faith” (p. 437). Secondly, she avoids the controversies about definitions of religion in academia.

Only major historical figures or public intellectuals were included (p. viii). Their public status introduces the possibility that they were writing for the public and with ulterior motives, rather than about their private beliefs. This is a historiographic concern that has entered certain textbooks, for instance, P. J. Bowler and I. R. Morus, *Making Modern Science* (Chicago, IL: University of Chicago Press, 2005). The editor appears unaware that this situation raises the question of bias. So-called minor figures might have been more interesting to consider for their lack of bias.

An extensive index and suggestions for further reading at the end of each chapter make the book very accessible. Sometimes the reading list fails to include studies of importance to the theme of the book. [See, for example, the chapter “Edward Osborne Wilson (b. 1929)” by Mark Stoll in Rupke’s, book cited earlier]. Highly recommended for anyone who wants to scout what is on offer in science and religion studies, or for students who need an essay topic.

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Letters

A Reply to Lamoureux’s Review of Beale’s *The Erosion of Inerrancy in Evangelicalism*

Lamoureux (*PSCF* 62, no. 2 [June 2010]: 133–8) is, as he says, “quite critical” of the evangelical position on inerrancy maintained by Beale in his 2008 publication, *The Erosion of Biblical Inerrancy*. Over against Beale’s view that the Scriptures must not be held to contain errors of fact, Lamoureux argues, following Peter Enns, that “literary genre *dictates* biblical interpretation” (p. 137, Lamoureux’s italics). Thus, properly, one “treats the ancient science as ancient science, and the ancient understanding of human history as an ancient understanding of human history” (p. 137). Indeed, for Lamoureux and Enns, “under the inspiring guidance of the Holy Spirit, the science and history of the day were employed as incidental vessels to reveal inerrant messages of faith” (p. 136); “God accommodated to the level of ancient humans in the revelatory process” (p. 136). After all, did not the incarnation itself involve accommodation (the “humbling” of Phil. 2:8)?

Let me provide just a few of the many reasons why the Lamoureux-Enns accommodation approach to Scripture is entirely incompatible with biblical inerrancy, as well as being destructive to a meaningful Christian theology.

1. Spiritual facts (“messages of faith”) cannot be placed in an airtight compartment so as to separate them from secular facts (scientific and historical information). This is true in general, since all areas of knowledge interpenetrate each other; it is especially true in the case of special revelation, since the heart of biblical religion lies in God’s revealing himself in the secular realm (as the Creed says, our Lord “suffered under Pontius Pilate”). The question, “Are the death of Christ on the cross and his resurrection *secular* events or *faith* events?” parallels the question, “Have you stopped beating your wife?”—since it should be painfully obvious that the cross and the resurrection are *both historical and spiritual events at the same time*, and, if not historical, of little or no value spiritually. Doubt as to the historicity of biblical events will, logically and inevitably, produce equivalent doubt as to their spiritual value.

2. If the scientific and historical material in the Bible—which can in principle be checked for accuracy—is not reliable, why should anyone accept the spiritual/faith material set forth there—which cannot be checked? If the writers were not preserved from error in human geography, why would anyone trust what they recorded as to heavenly geography (“In my Father’s house are many mansions,” etc.)? A fundamental epistemological theme of Jesus’ teaching is, “If I have told you earthly things and you do not believe, how will you believe if I tell you of heavenly things?” (John 3:12). Indeed, it is exactly this solid factuality of Christian revelation which gives Christianity its character of “meaningfulness”—in contrast with virtually all other religious positions, cults, and world-views which, lacking in any factual testability (verifiability/falsifiability), suffer from epistemological “nonsensicality” or “meaninglessness” (to use the expressions of contemporary analytical philosophy).

3. Accommodationist approaches to Scripture are never justified by an appeal to *kenosis* (“limitation”) by way of Phil. 2:8. Of course, in becoming man, God took on human characteristics; but this did not include sin or error; had that been the case, one could not trust anything Jesus said about God, since (as Strack and Billerbeck have well shown in their *Kommentar zum Neuen Testament aus Talmud und Midrasch*) the vast majority of Jesus’ teachings can be paralleled in intertestamental Jewish writings—so he could well have simply accommodated himself to the fallible spiritual ideas of his time rather than offering fallen humankind eternal verities and the one divinely true way of salvation. Modern theologians such as Rudolf Bultmann and ecclesiastical liberals such as the late Bishop James Pike have gone this route, thereby evacuating not just the Old Testament of meaning by reducing its content to myth, but also destroying the New Testament gospel by demythologizing Jesus’ ministry and existentially dehistoricizing Jesus’ words and work.

Two wee bibliographical suggestions: ponder my essay, “Inspiration and Inerrancy: A New Departure,” included in my *Crisis in Lutheran Theology*, together with the appropriate sections (especially proposition 4.0) of my *Tractatus Logico-Theologicus* (www.ciltpp.com).

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Two Book Interpretation of Revelation

My thanks to Mary Vandenberg for her article (*PSCF* 62, no. 1 [2010]: 16–24) on the two-book interpretation of revelation, nature and the Bible. She traces the use of general revelation through nature back through Calvin to Augustine to Paul in Romans 1 and makes the solid point that Paul sees nature as pointing to God himself (good, loving, just) and not to the details of natural processes—as some scientific creationists might have it. Theirs is a descriptive/causal/hypothetical task and, insofar as researchers come up with convincing evidence, Christians need to be free to rejoice and to see the natural processes as part of God’s creative work.

As a theologian, Vandenberg wants to maintain a “high view” of the biblical text (supernatural revelation) and the distinctive feature of her methodology is, no doubt, teleological—what is the book trying to say to its original hearers and to us today? And what does it reveal about the purposive-redemptive nature of the Lord God? So, in her conclusion (p. 22 and endnote 47, p. 24), she warns against “rushing to reinterpret” the special book every time something seemingly conflicting arises from science.

In keeping with these Reformed commitments, it would be of interest to see her evaluation of a work like John H. Walton’s *The Lost World of Genesis One: Ancient Cosmology and the Origins Debate* (InterVarsity Press, 2009) reviewed by Sean M. Cordry (*PSCF* 62, no. 3 [2010]: 227–8). Perhaps she would agree with the following comments.

In Reformed theological language, Walton’s thesis can be reduced to one sentence: To read Gen. 1:1–2:3 as Moses may have intended, don’t necessarily see it as referring to a material creation, but rather view it as an outline of God’s eternal plan for that creation.

Back in my seminary days, I began researching the ancient Near East culture into which Abraham was born in Ur. The seven tablets of the old (2000+ BC) Babylonian creation story (“*Enuma elish*”) had recently been uncovered. As I read them, I could not help but wonder how Abraham reacted to the account of the fighting of the many gods, to the chief male god’s (Marduk’s) killing of the head female deity (Tiamat), his standing on her body and then cutting her in two to make the heavens and earth, and then using the blood of another god he had killed to make humans to be slaves of the deities. What a shock it must have been for him to discover the one and only God who made humankind in his own image, who each “day” added something to creation that would be for the good of men and women, and finally on the seventh day to come and dwell with the people he loved in his holy Temple!

If Walton had played up this sharp contrast on the theological level, his own major points would have been considerably clarified for his readers (for example, his interesting reflections on the seventh day). The differences in cosmology between the old polytheistic and the Hebrew monotheistic one may turn out to be more enlightening than the similarities he concentrates on. In the Babylonian case, for example, Marduk commands the lesser gods to honor him, and they build a temple somewhere in the heavens away from us inferior beings. [Cordry’s contention that the polytheistic deities’ “relationship to people was of utmost importance” (p. 227) was

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in error. Humans tended to fear the gods and sought to appease them.] In the Bible story – as Walton’s elaboration shows so beautifully – God wants to be with his creation and has a plan for building his tabernacle which he gives to his people to construct, to dedicate, to inaugurate, and to care for, and in which to worship their living Lord.

Walton has done some solid work, bringing his readers back into that ancient time, by using the number of creation texts now available to throw light on a possible way of understanding Genesis 1 and its implications for Old Testament studies and for science-faith questions. I hope my few suggestions will stimulate further discussion.

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Eisegesis Denies Inerrancy

C. John Collins, “Adam and Eve as Historical People, and Why It Matters,” (*PSCF* 62, no. 3 [2010]: 147) practices eisegesis in his approach to Genesis 2 f. and ignores the first chapter. Both reports in Hebrew are clear that a pair of individuals are described. In Gen. 1:29, “male” and “female” are singular nouns, whereas “them,” involving both, is plural. Genesis 2:5 refers to “the man” plus a negation. Verse 7 has “the man” formed and vivified. The reference is singular throughout. The succeeding passage is clear that this is one individual. The reference to building the woman is also clearly singular. But Collins references a tribe as supported by Scripture and history (p. 151).

To argue that the children of Adam and Eve were less civilized than depicted because they were much more ancient (p. 158), living at least 40,000 years ago rather than about 6,000 (p. 159), has no basis in the text. That there were contemporaries (pp. 158, 160) is clearly not in the text.

Here we run into a theological problem. If Adam’s federal headship of the thousands of contemporary human beings involved their receiving the divine image and likeness and being subjected to his disobedience (p. 160; cf. p. 159), then the righteousness of Jesus Christ should apply to all human beings alive since the resurrection. Consequently, Collins should adopt at least some version of Universalism.

Of course, Collins could argue that Adam, Eve, and the talking, walking serpent either organized the tribe to march past the tree and to partake, or arranged distribution to all. On this view, a pregnant woman’s eating would affect the fetus, but even newborns would have to consume a little juice.

Note may also be taken that my commendation of McGrath (p. 165, n. 73) was limited to his matching interpretation of the biblical chronology. Collins, in contrast, expands his chronology without biblical warrant.

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Historical Adam?

The historicity of Adam was the theme of the September 2010 issue of *PSCF*. An article by John Collins stated in the abstract, “that Adam and Eve were real persons, and the forebears of all other human beings” (p. 147). Although entirely wrong anthropologically, it was a well-articulated article. Dennis Venema authored a thought-provoking article that showed “evidence of human-ape common ancestry” (pp. 166–78). Brachiators swinging on the family tree, eh, Dennis? Good article.

Daniel Harlow read Genesis “in an age of evolutionary science” (pp. 179–95). “Modern science has amply demonstrated that phenomena such as predation, death, and the extinction of species have been intrinsic and even necessary aspects of life on earth for billions of years, long before the arrival of *Homo sapiens*. For this reason, many Bible-believing Christians have long found it difficult to read Genesis 1–3 as a factual account of human origins” (p. 179). True, but what about reading Genesis as a “factual account” of Jewish origins? Did Harlow think of that? No, Adam is a “type of Christ” (p. 181), a “literary figure” (p. 181), according to him. And thus Adam is erased from the line of biblical patriarchs who once breathed air.

John Schneider volleyed, “... in the event that conflict between science and Scripture *seems* to exist, it follows that at least one of the two—the *science* or the *reading* of Scripture—is mistaken” (p. 197). Right on! Here succinctly stated is the heart of the problem.

Sometime in the first century AD a funny thing happened. The beginning history of the Israelite nation contained in Genesis 2–11, which Moses had handed down to the children of Israel, began being interpreted by early Christians as the start of the entire human race. When they received the canon of the Hebrew Old Testament, due to their ignorance, they read themselves into what they should have, or at least could have realized, was a Jewish history book. A simple mistake in thinking Jewish history was human history is a common misunderstanding that has endured for 2,000 years and even left its stamp on this issue of *PSCF*.

Here is what the authors Collins and Harlow apparently did not know and certainly did not recognize. The likely existence of Adam as a legitimate, historical personality has already been substantiated with archaeological and historical evidence. This evidence was first presented in a series of articles that appeared in the December 1993 and March 1994 issues of *PSCF* entitled, “In Search of the Historical Adam, Parts 1 and 2.”¹ A book was published in 2008 entitled, *Historical Genesis: From Adam to Abraham* (www.HistoricalGenesis.com).² A whole school of thought and a movement has sprung up in recent months focused on the historicity of Adam in full recognition of the antiquity of the human race—the Historical Adam Society.

“Historical Adam” is a Christian apologetic that embraces the Genesis narrative concerning Adam and his descendants, and operates completely within the bounds of scientific discovery and historical evidence. This position considers Adam to have been a real historical person,

but not to have been the biological progenitor of the entire human race since our species, *Homo sapiens*, is known from the fossil record to have been living 200,000 years ago. As evidenced by both Genesis and archeological discovery, Adam lived around 5000 to 4000 BC in southern Mesopotamia, present-day Iraq, near the confluence of the four rivers of Eden.

The Bible links Christ with Adam biologically through its genealogies and theologically in Romans, and therefore a historical Adam is important in preserving the integrity of Scripture. While not the first human, Adam was the first in God's covenant line leading to Christ, and began the era of individual accountability. The knowledge of God for all humanity started with the Adamic covenant. It was through one man, Adam, that sin was imputed to the human race, just as grace is dispensationally given by God to followers of Christ.

The rationale for "Historical Adam" and the foundation for this belief are based fully upon the integrity of Scripture, the history of the ancient Near East as recorded in Sumerian and Akkadian literature, and upon related archaeological evidence. We have a movement. All we need are more members. Join at www.HistoricalAdam.org.

Notes

¹Dick Fischer, "In Search of the Historical Adam: Part 1," *PSCF* 45, no. 4 (1993): 241–51; —, "In Search of the Historical Adam: Part 2," *PSCF* 46, no. 1 (1994): 47–57.

²Richard James Fischer, *Historical Genesis: From Adam to Abraham* (New York: University Press of America, 2008).

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Cultural Development and Adam

A series of cultural events, initiated in approximately 5000 BCE, might shed some light on the creation of Adam. Evolution theory holds that modern man has evolved over millions of years. The Bible teaches that Adam was the first [modern] man created on the sixth day in the likeness of God.¹ This appears to be a conflict. Cultural development may be helpful in resolving this conflict.

Historian Will Durant describes five categories of artifacts that reflect cultural development: language, government, religion, engineering, and architecture. Using these five categories, he describes the first nineteen significant cultural achievements, all of which occurred between 5000 and 3000 BCE.²

At about four million years ago in the evolutionary process, *Australopithecus aferensis* had the same body plan as modern man, but was somewhat smaller with a proportionate brain size. Modern man has a larger brain, particularly the neocortex, where calculations, comparisons, judgments, and planning take place.³ Without networks, the brain is more likely to provide a linear output (e.g., danger in; flee or fight out). On the other hand, neural networks can produce an iterative response to stimuli with an output based on learning, experience, culture, and judgments.⁴ The neocortex contains several billion nerve cells which are highly networked by branching.

It seems reasonable that the cultural achievements of modern man are facilitated by this neural network. Of course, we know very little about the function of the brain of *A. aferensis*, or to what degree it was networked, but without question modern man is more culturally sophisticated.

The cited 2,000-year window of cultural expansion represents only 0.05% of the period from four million years ago to the present. Thus, the question is raised as to what could have generated this almost explosive cultural expansion around 5000 BCE. How did the brain change?

In 1986 Rita Levi-Montalcini and Stanley Cohen received the Nobel Prize for the discovery and study of the Nerve Growth Factor (NGF).⁵ NGF results from cleavage of a relatively simple peptide of 307 amino acid residues located on the proximal arm of human chromosome one. They showed that NGF was critical to the generation of neural networks within hours, while neuronal cells failed to survive unless NGF was added daily to the culture medium. Specific life molecules such as a protein take a long time to evolve. However, for every such molecule derived from a precursor, there would be a very short period when the final side group (using hydrogen, oxygen, nitrogen, etc.) is put into place. One moment this new side group is absent, the next moment it is present, and the new molecule can begin its work. In the case of Adam, the final side group may have been put in place in his nuclear genome, or into an existing molecule to allow his brain's neural branching to proceed. Thus, a final step allowing for the production of NGF could have been very fast. If the cultural explosion took place early in the hypothesized time frame, that is, around 5000 BCE, then this timing is relatively consistent with the often-criticized creation date of 4004 BCE.

Notes

¹Gen. 1:27, Gen. 2:7, Gen. 5:1.

²Will Durant, *The Story of Civilization*, vol. 1, *Our Oriental Heritage* (New York: Simon and Schuster, 1954). Events are described on pp. 98–329.

³Dean Hamer and Peter Copeland, *Living With Our Genes* (New York: Doubleday, 1998), 16.

⁴Francis Crick, *The Astonishing Hypothesis* (New York: Scribner and Sons, 1994). Chapter 13 deals entirely with neural networks.

⁵Rita Levi-Montalcini, "The Nerve Growth Factor 35 Years Later," *Science*, 237 (1987): 1154–62. Paper presented at the Nobel Award Conference in Stockholm.

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