Environment

CHRISTIANS, THE CARE OF CREATION, AND GLOBAL CLIMATE CHANGE by Lindy Scott, ed. Eugene, OR: Pickwick Publications, 2008. 144 pages, index. Paperback; $17.00. ISBN: 9781556358449.

This short book edited by Lindy Scott explores global climate change from a variety of angles. Part One consists of papers presented at a 2006 panel discussion on climate change held at Wheaton College. Since these first chapters were originally oral presentations, they contain a bit of overlap. Still, each of these early chapters coherently presents the evidence for climate change and discusses present and future implications. As such, the first half of the book serves as a good primer for anyone interested in the discussion.

Chapter one was written by Wheaton President A. Duane Litfin. This chapter introduces the panel and explains why Litfin signed the Evangelical Climate Initative statement, "Climate Change: An Evangelical Call to Action." In chapter two, physicist Douglas Allen defines the terms used to discuss climate change and explains the data that correspond with this climate change. The next two chapters respectively address the intersection between climate change and global health, and economics. The final chapter of this section, "Climate Change: Global Problem, Global Solutions" by Noah J. Toly, reiterates some of the arguments of the previous chapters, but also offers some hope that changes in human behavior can alter the trajectory of global climate change.

Part Two uses Wheaton College as a case study for a Christian response to global climate change. Whereas the first half of the book presents data, this half offers the personal. As a collection of personal reflections and essays, this section is unevenly written. Many of these authors appear to favor lists, and they write with an overly informal style. Still, this section offers some tangible examples of how to think through energy use issues and how to implement changes. For this reason, this section of the book can serve as a useful sourcebook for Christian schools and institutions that likewise wish to concretely respond to global change as part of their concern for creation care.

Reviewed by Rebecca J. Flietstra, Professor of Biology, Point Loma Nazarene University, San Diego, CA 92106.

Ethics

THEOLOGY, DISABILITY AND THE NEW GENETICS: Why Science Needs the Church by John Swinton and Brian Brock, eds. New York: T&T Clark/Continuum Books, 2007. 251 pages, index. Paperback; $41.95. ISBN: 9780567045584.

THEOLOGY AND DOWN SYNDROME: Reimagining Disability in Late Modernity by Amos Yong. Waco, TX: Baylor University Press, 2007. 450 pages, scripture, author, subject indices. Paperback; $39.95. ISBN: 9781602580060.

Officially, prenatal genetic testing is offered in standard medical care to enhance preparation and choice. In practice, what is generally available from prenatal genetic testing is abortion to prevent the birth of children with disabilities, most often with Down's syndrome. Once a diagnosis of Down's is established, abortion follows in the countries of Europe and North America at rates reported from 67% to 98%.

The writers of the Swinton and Brock anthology are agreed that this is a travesty for at least three reasons. First, by the time a diagnosis of Down's is made, a fellow human being is already with us and should be welcomed. This concern hinges on when one recognizes that there is a neighbor present in the womb to love. If the one diagnosed in the womb with Down's is a fellow human being, protection and nurture should follow as much as for people at any other age. Since the diagnosis is usually not available until several months into pregnancy, most of the authors of the anthology hold that a child is already present at the time of diagnosis and should be welcomed whatever his or her condition.

A second prominent theme in the anthology is that aborting Down's pregnancies disparages those who live with Down's. This argument is quite right to take seriously how people perceive themselves and long-term societal momentum. However, taking vitamin B12 during pregnancy to avoid spina bifida does not belittle or reject people who have spina bifida. People are embodied, but are also more than their bodies. Most can distinguish that they are more than a condition that affects them. Avoiding a condition does not say that those who still deal with it are thereby worth less. The power of this argument depends on the previous one as to whether one is using abortion to avoid a disability or to kill someone with a disability.

A third central theme is that God has a purpose in people being born with Down's. When they are not, the world is poorer. This concern builds from an Augustinian view of providence, that God ordains even the darkest threads of our lives to play a role in the greater picture we do not yet see. But even if Augustine is right that God chooses to control everything, could not God also choose to send deliverance? Jesus healed the man born blind (John 9:1–7).

This raises a theological issue that is particularly sensitive for Amos Yong's tradition. For many Pentecostals, continuing disability or illness tracks back to sin or lack of faith. Yong argues to the contrary, that his own brother with Down's is part of God's plan for a diverse human community. Waters argues in parallel in the Swinton volume, "May not the scholar disabled by critical cynicism, for instance, be graced by the gift of simplicity offered him by the Down's syndrome person?" For Waters, as for Yong, Down's is part of the different gifting God has designed for the edification of the church. Yong argues for this perspective from the full range of disability literature and from biblical texts. For example, he sees Jacob's limp as a disability that is a testimony to Jacob's walk with God. Yong acknowledges that seeing Down's as God's design for now and in heaven is a novel approach; he directs half of his book to the implications of such a conviction for a wide range of systematic theology. He develops in particular what he calls an emergentist/

relational anthropology, a pneumatological ecclesiology, and a holistic soteriology.

Brock as an editor of one volume and Yong as the sole author of the other, enrich their books with poignant accounts of each having a family member with Down's syndrome. Yong in particular begins every chapter with the experiences and words of both his brother Mark and others with Down's. This allows the authors to make vivid the importance of welcoming, enjoying, learning from, and working with our brothers and sisters in the faith who have Down's syndrome. In that important call, both books are perceptive contributions. As noted above, the success of further claims depends on where one stands on some of the most basic of theological convictions.

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

General Sciences

QUANTUM SHIFT IN THE GLOBAL BRAIN: How the New Scientific Reality Can Change Us and Our World by Ervin Laszlo. Rochester, VT: Inner Traditions, 2008. 184 pages. Paperback; $14.95. ISBN: 9781594772337.

Whenever I read a book written by a Nobel prize nominee (peace, in this case, twice), I expect an interesting read. *Quantum Shift in the Global Brain* did not disappoint, but for rather a surprising reason: the book is a strange juxtaposition of societal and global trends, quantum and chaos physics, and pseudoscience, with wide breadth and bold claims. So it kept me on my toes. It would be difficult to portray the breadth of such a broad sweep of knowledge, and likewise, virtually impossible to portray all the controversies that actually lie behind many of the claims that are taken as simple fact in this volume.

The book is in three parts. The first consists of a succession of eight rather brief chapters. The first couple of these discuss many of the challenges that we face as humans in terms of sustainability, as seen by Laszlo. He predictably warns against such concerns as manmade climate change and a menagerie of political, economic, and ecological problems, and also makes some good points in criticizing the modernist mechanistic mentality, or "business as usual" (p. 9), a civilization he portrays as a "culture of *Logos*." Here he also begins to pick up on the theme of world unity and his idea of the coming "macro-shift," in which he refers to chaos theory (nonlinear dynamics) as a potential source of that shift. Taking some license with this whole field of science—and assuming that evolution is best described by nonlinear dynamics (p. 20), a controversial subject at best—he outlines phases of a nonlinear process for the evolution of society: after our own societal structures such as our economic and financial systems (the "roots of unsustainability," p. 39) cause instability, then comes a "run-away" situation that gives rise to a point of bifurcation of society's evolutionary trajectory, leading either to breakdown or to breakthrough (p. 19). The breakthrough is to be governed by such things as "more effective information use" and "higher organization levels" (p. 28). Finally, we reach chapter five, called "A New Vision" (p. 51) in which he first debunks a number of "outdated beliefs" and "dangerous myths," many of which we Christians would also be uncomfortable with, e.g., "technology is the answer" and "new is always better" (p. 53), or "the more you consume the better you are" (p. 58). In place of these, he offers a new ethical code, which he calls a "planetary ethic" (p. 63), complete with his own "ten commandments" (pp. 61–2), starting from an ecological globalism. The major idea is to "*act so as to further the ongoing evolution of the biosphere*" (p. 71, italics his). He clearly has in mind here that we are to actively take on the next chapter of evolution and forge our own future. The end result is to replace the culture of *Logos* with a "culture of *Holos,*" the title of chapter 7.

Part Two addresses the question, how is this culture of *Holos* to be realized? The answer is, by harnessing the quantum world of coherence in our minds. While it is true that experiments in quantum mechanics yield astounding results in nonlocal coherence (usually called entanglement), Laszlo takes these results far beyond the laboratory. His claims are reminiscent of the movie *What the Bleep Do We Know?* a movie that, like Laszlo, suggests that quantum mechanics demonstrates an interconnected world of consciousness for all humanity, and hence, a "quantum shift in the global brain." The difference is that Laszlo expands the ideas, wrapping them in a new pseudoscientific jargon, sprinkling legitimate science in between his own interpretations of speculative claims which he asserts as facts, but often without references. This is typical pseudoscience fare.

In view of the quantum coherence experiments, Laszlo postulates a coherence in the domain of all brain and mind, and then postulates an "akashic field" or "A-field" (p. 108) in the "cosmic plenum" (p. 88), which is supposed to be the interconnecting field of all nature, and of all minds. (By "cosmic plenum," he means the quantum vacuum, although he does not like the connotations of that term, p. 92.) He then offers us a "new metaphysics" (two domains, the spacetime domain and the domain of "cosmic plenum," p. 113), a "new theology" ("God is part of the universe. God's creation is not the universe we observe and inhabit itself but the *potentials* of the universe for its *self-creation,*" p. 116, italics his), and a "new morality" ("moral action contributes to the coherence of the subject and the world around the subject," p. 118). It is hard to relate how implausible most of what he says in this section sounds to a physicist. For example, he apparently thinks it makes perfect sense to say "[o]ur wave fronts propagate in the A-field of the plenum and interfere with the wave fronts created by the bodies and brains of other people. The resulting interference patterns are natural holograms …" (p. 124), and these propagate "most likely" by longitudinal "scalar [electromagnetic] waves," which "carry information but not energy" (p. 165), a nonsensical concept to most physicists. According to this "theory," generations leave their "holographic traces" in the A-field and the collective of all holograms is the "collective information pool of humankind" (p. 124). He ends the section with "[t]he quantum shift in the global brain is humanity's best chance" by which he means a heightened level of "transpersonal consciousness" (p. 125) through the A-field. This he relates to various forms of traditional religious "enlightenment" along the way.

Most of the last section is spent describing efforts by various organizations which are set up for pursuing Laszlo's program, such as "The Club of Budapest" and the "WorldShift University." However, the final chapter is strikingly different: a rather lengthy discussion comparatively (20 pages) concerning communication with the dead through various old electronic devices (e.g., tube radios) which are explained through, you guessed it, the A-field holograms. This chapter was perhaps the most fun read of the entire book, although I found myself constantly asking, "What is really going on?" Although they mentioned several scientists who attested to the phenomena, I was reminded of reading somewhere that if you really want to get to the bottom of something like that, you need a magician; scientists are too easily fooled.

In summary, Laszlo portrays a wonderfully attractive vision of some sort of utopia that is to emerge after a rather chaotic upheaval in our cultural experience. But this vision, while "spiritual" in some sense, is far from Christian, with no sin, no savior, and the only salvation is in the peace and harmony that his "akashic field" is supposed to provide.

Who would want to read this book? There may be some readers of this journal who might be interested in it: those interested in keeping up with "new age" moves, those who enjoy debunking claims of pseudoscience, people interested in globalization and the various efforts on that front, and people interested in spirituality studies. However, because this is not a book to which one would turn to learn science, nor is it a book that in any way seriously engages Christianity, I do not imagine that the book would be of major interest to most readers of *PSCF*.

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HEALTH & MEDICINE

CONSCIOUSNESS, SELF-CONSCIOUSNESS, AND THE SCIENCE OF BEING HUMAN by Simeon Locke. Westport, CT: Praeger, 2008. 172 pages. Hardcover; $34.95. ISBN: 9780313350061.

With a few notable exceptions, the study of consciousness during the twentieth century was almost exclusively under the domain of philosophers and theologians. Those who were professionally aligned as behavioral or natural scientists were actively discouraged from investing any intellectual stock in this elusive topic. Fortunately, a subtle paradigm shift has opened the door for scholars from a variety of disciplines to weigh in on this fascinating subject. Within the past fifteen years, there has been a plethora of scholarship involving hundreds of published articles in referred journals and dozens of books. Simeon Locke's book *Consciousness, Self-Consciousness, and the Science of Being Human* is a welcome addition to the recent collection.

There is much to appreciate about Locke's attempt to define and contextualize consciousness. Part of the uniqueness of this book resides in Locke's own training and subsequent distinguished career in the field of neurology. Locke takes a physicalist, as opposed to a philosophical, approach to the study of consciousness. This aligns him more with the recent writings of scientists such as Hobson, Crick, Koch, and Damasio. Not only does Locke see consciousness (which includes at least three levels) as solely arising from brain states, but he goes even further than most authors to try to associate different aspects of consciousness, or self-consciousness, to specific structures and functions of the central nervous system. He is clearly interested in theorizing that which fits with our current understanding of biological plausibility.

Another characteristic that sets this book apart from others is its brevity. It is one of the shortest books I have read on the topic. The book, not including references and end-of-chapter notes, comes in at 122 pages. The book contains seventeen chapters, most of which are fewer than five pages in length. Yet Locke's prose is transparent and terse—he gets right to the point, and time is not wasted on irrelevant diversions.

Locke defines consciousness as "the state of an organism able to respond at a cerebral level to stimuli from the environment" (p. 6). Several comments are in order concerning this definition. First, Locke wants to confine the definition of consciousness to a state of preparedness or readiness to respond. This clearly implies that consciousness is not a "thing" that occupies a particular location in the brain. Essentially, consciousness is viewed as a function. This particular view appears to be adopted from William James who wrote about it more than one hundred years ago. Second, this definition does not make consciousness the sole property of humans. Third, Locke is convinced that the concept of awareness is an altogether separate phenomenon and should not be linked with consciousness. If an organism is aware of being aware, then, in Locke's view, the organism is displaying self-consciousness.

An additional contribution to Locke's theorizing resides in how he sees the "function" of consciousness emerge. Consciousness is an emergent property, not from a cell or a collection of cells, but as a process or function of a system which is composed of interchangeable parts. The concept of interchangeable parts is unique. It allows for a system to maintain a "generalized" consciousness even under conditions in which functional parts of the system are compromised. This could help explain why we have not located consciousness in any one particular area of the brain.

Locke's book does have its flaws. While he introduces various subtopics from the fourth chapter onward—such as attention, sleep, representation, vision, and volition—the discussion is too brief to allow one to get into the more substantive issues and questions. In addition, Locke has a challenging writing style, both in terms of how the language flows and in its clarity.

Overall, I recommend this book for graduate students and members of the academy who want to add some fresh ideas to their existing study of consciousness from a neurobiologically informed perspective.

Reviewed by Bryan C. Auday, Professor of Psychology, Gordon College, Wenham, MA 01984.

History of Science

SCIENCE AND SCIENTISM IN NINETEENTH-CENTURY EUROPE by Richard G. Olson. Urbana, IL: University of Illinois, 2008. 368 pages. Paperback; $27.00. ISBN: 9780252074332.

In *Science Deified and Science Defiled* (2 volumes, University of California Press, 1991, 1995), Richard G. Olson explored "the historical significance of science in Western culture from the early modern age through the early romantic." In this volume, he continues the historical survey through the nineteenth century, in the process analyzing an amazing array of intellectual and social movements including, among others, the post-revolution French ideologues, Saint-Simonist socialism, positivism, *Naturphilosophie*, romanticism, and social Darwinism.

Olson, who is professor of history and the Willard W. Keith Jr. Fellow in Humanities at Harvey Mudd College, integrates these separate stories into a coherent narrative by employing the lens of "scientism," which he defines in a nonpejorative sense, contra Hayek and others. Olson's stated goal is "neither to applaud nor condemn the attempts of nineteenth-century thinkers to bring methods, concepts, practices, and attitudes from the investigation of the natural world to bear on human activities and institutions" (p. 3). For the most part, he succeeds. His portrayals of competing or quarreling parties, movements, and ideologies are even-handed, frequently sympathetic. There is no axe to grind.

This dispassionate approach is for Olson not merely a convenient tactic that permits him to address diverse movements and views without subjecting them to continual critique and evaluation; it is also a reflection of his understanding of the pluralism of scientific orthodoxies today. He argues that "there are many different sciences and many different scientific practices, or rationalities, each of which functions in our culture to affect the views of different groups of people for different purposes" (p. 5). This is an explicitly postmodern approach to science, reminiscent of Alasdair MacIntyre's critique of competing rationalities (*Whose Justice? Which Rationality?* University of Notre Dame, 1989).

Olson explicitly characterizes science as a "cultural institution" that, while "aimed at contributing to an organized, universally valid, and testable body of knowledge about phenomena" (p. 2), does not necessarily produce what it seeks to do. Nor does Christianity, he notes. Olson's last book, *Science and Religion, 1450–1900* (Johns Hopkins, 2006), employed the same broad survey approach to cover the familiar terrain of the interplay between scientific and religious thought during these formative centuries. There he again rejected the dominant paradigm of the literature (in this case, that of confrontation), finding instead a frequently positive, surprisingly diverse, and occasionally mutually supportive relationship between these two cultural movements. Olson approaches both science and religion as cultural expressions that are created, understood, and utilized by their practitioners for a variety of purposes.

And he is interested in those purposes. In this volume he understands scientism very broadly, as any social, intellectual, or cultural movement that claimed or endeavored to situate itself as somehow "scientific" and regarded itself therefore as superior in process or content from those to which it stood in opposition. This broad definition obviously includes the early socialism of Henri Saint-Simon, because "given their understanding of the historical and future goals and characteristics of science, the Saint-Simonians unquestionably understood themselves as scientists" (p. 59), a claim that Frederick Engels and the aforementioned F. A. Hayek both derided.

But it also includes some unexpected characters, such as the higher criticism school of German biblical scholarship (e.g., David Strauss, Ludwig Feuerbach, etc.). Regarding the latter group, Olson strays from his topic for just a moment to speculate on the reasons that various European intellectuals found themselves pulling away from or attempting to reshape orthodox Christianity. Instead of rooting this loss of faith in the rise of public science, he argues instead that "interest in science, by itself, rarely if ever seems to have initiated religious crises. More frequently religious crises led to a search for alternative sources of value, which often ended in some form of scientific position, either secular or religious" (p. 185).

Olson's survey is organized both chronologically and geographically. He begins in France, arguing that "early nineteenth-century scientisms were principally reactions against scientifically grounded social theories that had been developed during the seventeenth and eighteenth centuries and that seemed to be implicated in the origins of the French Revolution" (p. 11). Part One thus includes chapters on *Ideology*, on Saint-Simon and socialism, and on August Comte and positivism, all of which arose in the decades following the Revolution and attempted to supplant some of its assumptions.

Part Two moves first to Germany and then to Britain. It begins with a chapter on *Naturphilosophie* (a fascinating discussion of a scientific method quite different than that which has become dominant in the century and a half since), another on competing materialistic philosophies and the reshaping of religious thought among intellectuals, and a third on public science in the early Victorian period.

Part Three is less geographical and focuses on the particular impact of evolutionary thought in the nineteenth century, exploring pre-Darwinian views, Darwinian evolution (a popular topic these days given Darwin's two-hundredth birthday in February and the sesquicentennial of the publication of *Origin of Species*), and, of course, Social Darwinism, perhaps the most readily recognizable scientism of this century.

Part Four consists of a shorter (one-chapter) discussion of "the problem of degeneration" in the late nineteenth century. Perceived physical, moral, or social degeneration served as the moral and intellectual opposite of the optimism of most scientific and scientistic thinking of the nineteenth century, and was often linked to the second law of thermodynamics. It thus served as fodder for much early twentieth-century thought, particularly post-World War I.

Unlike most historians, who work within the framework of a "long" nineteenth century, stretching from the outbreak of the French Revolution in 1789 to the outbreak of World War I in 1914, Olson ends his survey in the 1890s, as he observes a shift in the thinking of the intellectuals who came into their prime during that decade (e.g., Nietzsche, Freud, Weber, Croce, and Mach) away from the more simple scientisms of the earlier decades to a more complex, less optimistic understanding of the potential of both science and human society. He also perceives a shift in the center of such thought, away from Europe to the United States, occurring during this decade.

Any work of such scope, compressed into so few pages, can be criticized for what it includes and what it does not. Recognizing that the dominant intellectual currents of the nineteenth century were largely in northern, Protestant or secular Europe, I was nonetheless disappointed that there was largely no mention of southern or eastern Europe, and find myself wondering if the Catholicism or Orthodoxy of those regions inhibited or invalidated appeals to science as the basis for social or intellectual movements that would be classified as scientistic. Nevertheless, such questions of inclusion/exclusion are overly picky. This is very good intellectual history: broad enough to make intriguing connections, deep enough to learn something new, short enough to be absorbed in a single volume, and readable enough for the educated nonspecialist to enjoy. And, if Olson is correct, it may even be helpful in understanding the scientisms of our day, rooted as many are in the methodologies and assumptions of the nineteenth century.

Reviewed by Anthony L. (Tony) Blair, Associate Professor of Leadership Studies, Eastern University, St. Davids, PA 19087.

Origins & Cosmology

THE GOD WHO MAKES THINGS HAPPEN by Samuel A. Elder. Lincoln, NE: iUniverse, Inc., 2007. x + 134 pages. Paperback; $14.95. ISBN: 9780595422364.

Samuel Elder is a Fellow of the Acoustical Society of America, author of textbooks and numerous journal articles, has taught both college level Bible and physics courses, and currently lives in Annapolis, Maryland. The present book is an exploration of the impact of modern physics on interpreting the Genesis account of creation. Before getting into the specifics of the text, a few things need to be mentioned. For example, this title assumes that spiritual and physical realities are compatible with one another, and even necessitate one another. Additionally, Elder avoids technical jargon in this text, even though he is a practicing physicist; however, when the unavoidable technical term arises, it is defined in the attendant glossary. Further, he uses the NIV version of the Bible for textual citations throughout the text (which may reflect his targeted popular audience). A generous end notes section is provided at the close of the text.

In the introduction, I sensed that Elder was proverbially preaching to the choir, noting that God had a "plan" for each one of us from all eternity, as demonstrated by the creation of the heavens and the earth. He notes that modern physics enables the position of God creating the earth in a dual time frame, one which could be experienced at one place as a billion years, e.g., but at another as a "day." As a result, he notes that the six 24-hour-days model of creationists and the physicist's 13.7 billion year model are not logically inconsistent with one another. In the first chapter, Elder stipulates that God *must* be outside of time, insomuch as the past, present, and future are all accessible to him at once, and he contends that the first glow of escaping light photons originated when the Spirit of God was "hovering over the waters" (p. 15). With these two assertions by Elder—regarding the "day" of creation and the Spirit "hovering over the waters"—my first criticism of this text is found. At various junctures he employs an analogical reading of Scripture, only to then turn right around and employ a woodenly literal interpretation of the text; one wishes that he would be consistent.

Chapter two—for all intents and purposes—is a sermon on the two complementary models of physics discovered by the twentieth-century physicists, Einstein, Schrödinger, and Heisenberg, regarding relativity and the uncertainty principle. Elder goes on to elaborate on how he thinks God is sovereign over chance, using proof texts from Proverbs as the basis of his extrapolation. Citing Heisenberg's uncertainty principle, he points out that this allows God to control the universe *moment by moment*, since it is clearly taught in Scripture that God alone is sovereign over all.

The third chapter continues Elder's, at times, woodenly literal interpretation of Genesis 1. Therein, he details what God did on *each* day of the "week" of creation. For example, he argues that God accelerated photosynthesis on day three, standardizing the form of the sun on day four (but one wonders, how did photosynthesis occur without a standardized sun?), and adding living creatures on days five and six (pp. 50–1). He claims that each movement upward in biological complexity constitutes an act of *special* creation by God, which indicates that evolution is in need of a "helping hand" by God (p. 51). Moreover, he advocates a literal Adam and Eve, the first couple from which original sin—as a quasi-genetic abnormality—is derived (note, both of these positions find less than consonance in modern theology and science circles).

In explicating his view of miracles (chap. 4), Elder notes that modern day Armenia is the site of the *Garden of Eden* (p. 65). Chapter five discusses the authority of Scripture, and then chapter six transitions back to science in order to assert that it does testify to the truth of God's actions in the world. Therein, he also argues for what I would call a "regularity view" of scientific laws, one that pictures the laws merely as approximate, which would support his earlier theses regarding the possibility of miracles in chapter four. The seventh chapter furthers his contention that God is outside of time, and the eighth extends this thought to what he refers to as "soul time," which allows for the possession of eternal life in the here-and-now. Chapter nine depicts how reality will be redefined at the eschaton—both for the lost and for the saved. He concludes the book with a mandate to conduct godly science, and an exploration of God's plan for the church.

In sum, I found this book to be disappointing. Perhaps my expectations were wrong, but I did not figure on getting a proof-text argument for the existence of God. Nevertheless, for those who desire to use Scripture as a sword that not only illuminates, but also cuts away, this title might be profitable. I could see it being used as a text for apologetics at fundamentalist institutions of higher learning

Reviewed by Bradford McCall, Regent University, Virginia Beach, VA 23325.

Philosophy & Theology

THE GROANING OF CREATION: God, Evolution, and the Problem of Evil by Christopher Southgate. Louisville, KY: Westminster John Knox Press, 2008. 196 pages, index. Paperback; $24.95. ISBN: 9780664230906.

Review I

A pelican typically lays one egg and then two days later a second egg. Once both are hatched, the older chick harasses the younger sibling. The younger chick is usually forced from the nest to die from starvation, predators, or exposure. This two-chick method ensures that the breeding season will produce at least one adolescent pelican, but it also means a nasty and short life for half of the pelican chicks.

While there is extensive literature addressing why God allows human beings to suffer, Southgate focuses in this book on why God has created a world where individual animals suffer as does the second pelican chick. Southgate is convinced that suffering can be necessary to the health of a population and species. In the short term, wolves taking down a sick deer can save the herd, and in the long term, killing the weak can strengthen the species. Southgate is morally stricken, however, by the individual animal that dies slowly from parasitic infection or a gaping wound. Such an animal did not have a complete life. Evolution posits untold billions of such individuals over eons of time. Why would God create a process where so many innocents suffer so acutely?

Southgate points out that the problem is heightened if God sovereignly chooses to ordain every action of every creature, if God intervenes at intervals to keep the process the way that God wishes, or if a curse on human actions is falling on the innocent. In contrast, Southgate develops an Irenaean perspective that God has established a process that at high cost makes possible the best ends. The world is good because what it will become is worth the price of the harms that occur en route. Despite the presence of suffering, God can still be known as creative, redemptive, and all-loving. God suffers with creation in the cross and inaugurates the transformation of creation in the resurrection.

It is the resurrection for human beings and sentient animals that makes it possible for this God-given, but suffering, world to be a just one. For Southgate, God's justice demands that each of the individual sentient creatures that suffered along the way will be resurrected as an individual to a better life. He admits that the expectation of an individual animal resurrection has no direct biblical proclamation and few theological champions, yet he is not alone. For example, John Wesley hoped as much, especially for his horse.

As to human responsibility until the resurrection, Southgate writes on the basis of Rom. 8:19–21, that human beings are called to mitigate animal suffering as part of ushering in God's new creation. Inclusive neighbor love is to extend to animals, granted that, while humans and animals are of the same earth, there remain crucial differences between them. In the last chapter, Southgate offers two concrete implications for action. He argues that there is a human obligation to protect species from extinction, and that while predators and people may still eat animals, such should only be in needed quantities after the prey animal has lived an appropriately fulfilled life. Animal predators cannot gauge this, but people can and so are responsible to do so. What is to be avoided is not death, but rather a life that is not complete.

Both awareness of animal suffering and of our responsibilities for animals within the earth's ecosystem are increasingly center stage. Southgate has done a great service in stating clearly some of the challenges that animal life and death raise for theology and ethics, several possible responses, and his own thoughtful prescription.

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

Review II

Christopher Southgate, the author of *The Groaning of Creation: God, Evolution, and the Problem of Evil*, serves as Honorary University Fellow/Research Fellow in Theology at the University of Exeter, England. He is also general editor and principal author of *God, Humanity and the Cosmos*, 3d ed. Southgate originally trained as a biochemist at the University of Cambridge.

The book under review constitutes an excursion in evolutionary theodicy. According to the publisher's blurb,

> Southgate argues that pain, suffering and extinction are intrinsic to the evolutionary process. The world that is "very good" is also "groaning in travail" and subjected by God to that travail. Southgate evaluates several attempts at evolutionary theodicy and then argues for his own approach, an approach that takes full account of God's self-emptying and human beings' special responsibilities as created co-creators.

This approach Southgate dubs a "compound evolutionary theodicy" which he bases upon his own "Trinitarian theology of creation and redemption."

Southgate's chief burden is to grapple with the underaddressed (especially by evangelicals) issue of animal suffering. In terms of theodicy, the most difficult issue to deal with has to be that of animal suffering, because animals, so it has always been held, have no sense of morality, no conscience, and thus no sinfulness, no moral accountability to their Creator. Their suffering is thus undeserved and apparently pointless. Southgate's specific concerns emerge in the following quotes:

> One of the core assumptions of Christian thought is the affirmation that God's creation is good. The beautiful rhythms of the first chapter of the Hebrew Bible culminate in the assertion that "God saw everything that he had made, and indeed, it was very good" (Gen. 1:31). However, humans have always known that the nonhuman creation contained violence and pain; the young lions, to quote the Psalmist, roar, seeking their food with God (Ps. 104:21).
>
> Though animal suffering was known before Darwin, the narrative of evolution that emerged in his work stretched the extent of that suffering over millions and millions of years and millions of species, most of them now extinct.
>
> We can now see why pain and violence are endemic in nature. We can also see the beginnings of a possible theodicy; values arise in evolution along with the disvalues.

Perhaps a few remarks on "theodicy" in general would be useful at this point. A theodicy is a rational defense of God's goodness, omnipotence, and omniscience (i.e., the God of Christian theism) in the face of the all-too-real existence of evil and suffering. It is an attempt to solve the problem of evil and suffering, historically the principal stumbling block to theistic belief among thinking people. The term derives from *theos* (God) and *dikē* (judgment, justification, right). A theodicy attempts to "get God off the hook" for all the evil and suffering in the world: how could a God who is omnibenevolent, omnipotent, and omniscient possibly allow evil and suffering, especially what is sometimes called "gratuitous" evil—evil and suffering (particularly of the innocent, such as small children and animals) that has no apparent point?

Yet interestingly, Southgate does not work with this traditional notion of theodicy. He writes,

> I am not seeking to prove the existence of God to those who do not believe, or yet to refute arguments against the existence of God. I am working within the community of belief to face the problems and tensions that come as we try to understand the God who made this world and who, Christians believe, acts to save it.

Southgate wants to rationalize for *believers* how an omnibenevolent, omnipotent, sovereign, and fully responsible God *who is worthy of our worship* could ordain evolution with all its disvalues as the means of creating and sustaining animal life. As he himself puts it most succinctly,

> I am trying to see how the two propositions (a) God is creator of this ambiguous world, which is "good" but also "groaning in labor pains," and (b) God is "worthy of worship" can be held together within the community of faith.

Southgate dismisses not only creationism and Intelligent Design as viable starting points for engaging with the debate about animal suffering, but also "models of God that remove the idea of his having created all that exists, or that dispute his goodness" and schemes that blame creation's disvalues on a Fall. He rejects a historical Fall because he sees no evidence of a "primordial paradise." Yet Southgate's entire argument and approach relies heavily upon Rom. 8:19–22, where we see creation groaning in frustration, in bondage to decay, waiting eagerly "for the sons of God to be revealed" so that it may be liberated. In the context of Paul's overall argument in Romans, however, it is hard to see how this current misery of creation could have been brought about by anything other than humans' Fall from paradise. This brings into sharp focus the issue of Southgate's bibliology; unfortunately, Southgate nowhere addresses what he thinks of Scripture or the issue of biblical hermeneutics.

Southgate affirms such classical Christian doctrines as Trinitarianism, *creatio ex nihilo*, resurrection, and final consummation. These doctrines allow him to reject the traditional Whiteheadian process metaphysic, while admitting the process notions of a dynamic cosmos, divine responsiveness and co-suffering, and ultimate divine sovereignty. He also ultimately rejects the evolutionary theology of Pierre Teilhard de Chardin because of, among other things, Teilhard's notion that God uses "evolutionary centration" to bring about a convergence upon a glorious, God-centered eschaton, rather than the biblical means of "the mighty redeeming act of God inaugurated in the Cross of Christ." In addition, drawing upon the work of Annie Dillard (*Pilgrim at Tinker Creek*) and Holmes Rolston III, Southgate helpfully distinguishes between the evolution-induced disvalue of the suffering of the individual animal, on the one hand, and the evolution-induced value of the survival of that animal's species that this suffering helps to make possible, on the other.

The basic contours of Southgate's "compound evolutionary theodicy" appear as follows:

1. The goodness of creation engenders many sorts of values.
2. Pain, suffering, death, and extinction are intrinsic to a creation evolving according to Darwinian principles.
3. An evolving creation was the only way God could engender all the beauty, diversity, sentience, and sophistication we see around us in the biosphere. (Southgate calls this the "only way" argument.)
4. God co-suffers with every sentient being in creation.
5. The Cross of Christ is the epitome of divine compassion, God's assuming of ultimate responsibility for creation's pain. Along with the Resurrection, the Cross inaugurates the transformation of creation, making possible the redemption of even the nonhuman creation, the eschatological doing-away with creation's groaning.
6. The need to give an account of how a loving God of loving relationship must provide an eschatological fulfillment for creatures that have no flourishing in this life. Such a God could never regard such a creature as a mere evolutionary expedient. This leads Southgate to posit an eschatological afterlife for individual animals.
7. Humans are of particular concern to God, if divine fellowship with creatures such as us is in any sense a goal of evolutionary creation. This makes human beings "co-redeemers" (or "co-creators") with God, or perhaps "stewards or priests or contemplatives of creation," with respect to the nonhuman creation and the healing of the evolutionary process. This leads Southgate to vegetarianism and a project to end biological extinction.

Points 1 and 2 (above) leave us with a dualistic view of creation—its glories (values) as well as its horrors (disvalues). Southgate calls this the "ambiguity" of creation. Points 1 and 2, when coupled with point 3, lead us to the proposition that the values of point 1 are not achievable except by the awful disvalues of point 2. God himself is fully responsible, then, for the horrific disvalues within creation, since he is the one who chose to use evolution to accomplish his ends. Points 4, 5, and 6 address the problem of animals whose lives are frustrated in that they do not achieve the "flourishing" intended for them and/or whose lives are rife with unrelieved suffering. Point 7 addresses how it is that we humans should respond to the plight of the nonhuman creation, in light of God's purposes for us and for it.

Parts of Southgate's theodicy are highly speculative, and he usually admits as much. But one wonders at the need for and the fancifulness of some of the speculation. For example, Southgate develops a Trinitarian "theology of creation" which includes the notion that God's self-emptying love (kenosis) drives relationships within the Trinity as well as God's relationship to the world. "The Father whose self-abandonment begets the Son, the Son whose self-emptying gives glory to the Father, these in the power of the Spirit give rise to living selves."

Throughout *Groaning*, Southgate interacts with a plethora of theologians, philosophers, and ethicists. Some parts of the book contain string upon string of quotations. The downside of this is that most of the originality in the book's overall argument (the speculative passages excepted) consists merely in the novel ways in which Southgate puts the quotations together. The upside is that *Groaning* is erudite, nuanced, and sophisticated both theologically and philosophically (almost 50 pages of endnotes and an 11-page index for a text of just 133 pages).

However, the book's argument will likely be viewed by those adhering to the orthodox tenets of the Christian faith as ultimately failing to achieve its ends, due to its acceptance of and reliance upon thoroughgoing neo-Darwinism and its rejection of a historical fall of the human race from a "primordial paradise" into sin. For such readers, the book's main value will probably lie in its concluding ethical proposals as to how we humans might view our calling with regard to the nonhuman creation. Southgate does offer us some very useful insights into how Christians ought to approach such issues as vegetarianism, global justice, global warming, abattoirs, and the ethics of extinction.

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GOD AFTER DARWIN: A Theology of Evolution, 2d ed. by John F. Haught. Boulder, CO: Westview Press, 2008. 219 pages. Paperback; $30.00. ISBN: 9780813343709.

John F. Haught is a distinguished research professor of theology and a Senior Fellow in Science and Religion at Woodstock Theological Center at Georgetown University. This work is an expansion of Haught's first edition titled the same, published in 1999. The motivation of this work is centered on the author's involvement in the court case *Kitzmiller et al. v. Dover Area School District.* Haught was a witness on behalf of the plaintiff providing testimony to argue that intelligent design is basically a religious idea and it would violate the standing laws of the U.S. Constitution to teach it in the public schools (p. xii).

Haught admits that the main assertions and/or content of this book remain similar to the first version with the exception of some clarifications and comments concerning his involvement in the aforementioned trial. Once again what Haught is attempting to do is to take Darwinian thought and the scientific evidence supporting evolutionary biology and find a theology that is synergistic or "engages" with it. This is not a book that wishes to participate in a debate concerning this scientific evidence, but rather wishes to find a theology consistent with it.

Haught would contend that the classic positions of the current debate (evolutionary naturalism vs. creationism) share in common an overarching hypothesis that what Darwin put forth in his writings (e.g., the process of natural selection) is essentially atheist/materialistic in its theology. Haught asserts that it is not a foregone conclusion that evolutionary biology necessitates the removal of a "hierarchical vision" of reality. Furthermore, he wishes to show that this is, in fact, a false debate. On the one hand, there are scientific assertions (composed of facts verifiable through the scientific method) that should not have any specific metaphysical ramifications, and on the other, there are metaphysical assertions that do not have any naturalistic implications. Haught's aspiration is to posit a theology that is not an affront to evolutionary biology as put forth by Darwin. Rather, in some sense, he wishes to assume it and then find God within this schema. Haught spends the first seven chapters of the book on this very idea.

He borrows heavily from process theology (Whitehead) and modern Catholic theology (Rahner and others), and demonstrates his breadth as a theologian by engaging other philosophical worldviews that help best explain this developing theology. What results is a well-developed theology of evolution that takes seriously the assertions of evolutionary science and attempts to maintain the theological traditions of his Catholic faith. In order to accomplish this, Haught asserts the "metaphysics of the future" as the rubric in which he finds the Divine as the appointed end that the universe is being drawn toward and as the best explanation for the novelty found in the evolutionary process, rather than the mechanical (read algorithmic) processes put forth by evolutionary materialists. Evolutionary science then becomes the description of the process of forming and transforming the universe into increased levels of beauty as it moves toward Haught's modern version of Teilhard's "Omega point."

Haught's theology is both well developed and systematically constructed, and therefore it is required to be taken seriously. This is a must read for anyone who wishes to balance a theistic worldview with the desire to allow scientific evidence to speak on its own terms without metaphysical predispositions.

Yet the theology put forth in the pages of this book is not without some difficulties. Haught's theology of evolution does suffer some from a lack of a universal,

objective point of reference from which to ground his metaphysical tenets. His acknowledgment of continual novelty in the universes makes it difficult for his truth claims to contain an objective meaning. In a truly dynamical system in which everything is in process and subject to change, what can be posited other than novelty itself and what truth claims can be known now that are not subject to the same volatility to which the universe itself is subject? So while Haught asserts God as the ultimate realization or fulfillment of this dynamical system that is the universe, it is not clear what can be known concerning this eschatological vision, nor is it entirely clear that this eschaton is consistent with the biblical narrative.

Questions concerning his theology notwithstanding, Haught's work should provoke a much larger, more meaningful discussion as to what the nature of the debate between the theological community and the scientific should be. This is a welcome and valuable contribution to the discussion and may represent a path forward in which science serves to annotate and demonstrate divine action, and theology takes scientific information seriously and acknowledges it as a revelation of the divine.

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RELIGION & BIBLICAL STUDIES

VICTORIAN RELIGION: Faith and Life in Britain by Julie Melnyk. Westport, CT: Praeger, 2008. 232 pages. Hardcover; $49.95. ISBN: 9780275991241.

Russian literary critic Mikhail Bakhtin (1895–1975) celebrated novelistic heteroglossia—the different tongues of multiple perspectives—as preferable to the single voice of a lyric poem. His paradigm could be applied to discussions of Victorian religion, which tend toward "monologism," Bakhtin's term for an approach which legitimizes only one perspective. And the perspective most often validated by Victorian scholars is one of loss: a loss of faith in Christian verities, bred when a church complicit with aristocratic privilege could not provide an effective prophylactic against the skepticism engendered by scientific discovery and the German higher criticism.

Julie Melnyk challenges such monologism in her heteroglossic *Victorian Religion: Faith and Life in Britain*. This is not to say she ignores the so-called "Victorian faith crisis." But she gives it only one chapter out of eight, substituting the word "unsettlement" for the more dramatic and seemingly all-encompassing term "crisis," thus signaling that atheism and agnosticism were merely two religious tongues among numerous others during the Victorian era. In fact, Melnyk's chapter on "The Victorian Religious Unsettlement" provides the least new material for fans of Victorian literature, since it presents what many of us have already been taught about Victorian religion.

Far more interesting are Melnyk's numerous examples of vibrant Christian practices during the nineteenth century, from Dissenter activism to Tractarian ritualism, from the evolution of Sunday Schools to the development of family devotions. Surprisingly, one might conclude from the data Melnyk presents that life in church and chapel was far more vigorous at the century's end than at its start, largely due to the passionate engagement of Christians at opposite ends of the Anglican continuum: low church Evangelicals and high church Anglo-Catholics (Melnyk distinguishes between evangelical dissenters and Anglican Evangelicals with the capital "E"). She notes that "formal weekday services … became more common later in the century" (p. 78); that inhibitions about taking communion were changed "under Evangelical and Tractarian influence," such that "regular communion became an accepted part of most Anglicans' worship" (pp. 81–2); and that, "after Catholic Emancipation in 1829 and the restoration of the hierarchy in 1850," the number of Roman Catholic convents grew from sixteen in 1830 to nearly six hundred by century's end (p. 131).

In addition to describing the heteroglossia of Victorian religion, Melnyk practices heteroglossia as Bakhtin defined it. She presents diverse beliefs and practices with sympathy, as though she were an apologist for each. Avoiding clichés about Victorian prudery she discusses Christian concern for prostitutes, celebrating Evangelical development of the "family home system," which placed prostitutes in home-like (rather than institutional) settings in order to give them alternative life skills. She even makes us sympathetic with the temperance movement, demonstrating not only its legitimacy, but also the heteroglossia of its supporters, from the British Women's Temperance Association to the Chartists, who "saw drunkenness as a barrier to the achievement of full political rights for the working classes" (p. 93). Nevertheless, as she admits, the temperance movement "left its mark on Christianity in Britain, increasing the reputation of evangelicals as killjoys and, late in the century, further alienating working-class men from religious practice" (p. 94). Some readers will recognize this latter admission as the only perspective on Victorian temperance they had been given in the past. Melnyk, in contrast, offers heteroglossia rather than monologism.

And many of the tongues she includes are female, telling stories of explicitly Christian women who made a difference in Victorian culture: Octavia Hill, an activist in housing reform, who converted tenements to livable spaces for low income people; Josephine Butler, who successfully campaigned against the double standard in prostitution law; Emma Jane Worboise, who edited the *Christian World Magazine* for twenty years, arguing that "there is no profession more truly sacred than authorship; like the ministry, it ought to be a vocation rather than a profession" (p. 110). These women illustrate one of Melnyk's points: the Christian faith, both in Anglican and dissenting forms, allowed, if not encouraged, women to exercise their gifts and take leadership in ways that influenced and changed Victorian culture. Though such women were in the minority and were denied official positions in the church, their example subverts the monologic cliché that Christianity suppressed female talent and leadership.

The only thing that bothers me about *Victorian Religion*, aside from some redundancy, is the stylistic oddity of the third chapter. Melnyk begins the chapter by saying, "Imagine that you are a young Victorian man, and you have decided that you want to be a clergyman in the

Church of England" (p. 52). She then uses the second person to inform the reader about requirements and events in the ordination process, saying things like, "So if you have Whiggish sympathies, perhaps Cambridge would be the better choice" (p. 53). She thus creates a tone disharmonious not only with the rest of her book, but also with adjacent passages that employ expository prose. Perhaps this approach reflects Melnyk's presumed audience, as stated in the book's foreword:

> The book's clarity and its plentiful examples make it enormously useful to novel-readers, to teachers, and to anyone interested in the political and social as well as the theological meanings attached to religion (p. xi).

Notice that Victorian scholars are not included in the list, many of whom might feel frustrated by the book's limited citations—not only for sources of Melnyk's data, but also for current scholarship on issues that she addresses. One glaring omission is Timothy Larsen's *Crisis of Doubt: Honest Faith in Nineteenth-Century England* (Oxford, 2006), a book that explicitly challenges the monologism of traditional scholarship on Victorian religion. Larsen's examples of skeptics who reconverted to Christianity would have enriched the tones of Melnyk's heteroglossia.

Despite this lack, I found *Victorian Religion* well worth reading. Though much was familiar territory, especially when Melnyk quoted canonical Victorian authors—Dickens, Eliot, Tennyson, Trollope, Bronte, Ruskin, Darwin, Huxley, Arnold, Clough, the Brownings, etc.—I reveled in a multitude of details that made Victorian culture, and our inheritance from it, speak in new tongues.

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Religion & Science

REINVENTING THE SACRED: A New View of Science, Reason, and Religion by Stuart Kauffman. New York: Basic Books, 2008. 320 pages. Hardcover; $27.00. ISBN: 9780465003006.

Stuart Kauffman is one of the leading experts in complexity theory and emergence in the general area of the biosphere. The first ten chapters of this book are devoted to his specialty and present a strong, compelling argument for the existence of the sacred in nature. All ASA members should read these chapters. However, there are serious problems with the rest of the book, where he jumps out of his area of expertise.

Kauffman's motivation for this book is described on the first page of chapter 10:

> What about all the aspects of the universe we hold sacred—agency, meaning, values, purpose, all life, and the planet? We are neither ready to give these up nor willing to consider them mere human illusions. One response is that if the natural world has no room for these things, and yet we are unshakably convinced of their reality, then they must be outside of nature-supernatural, infused into the universe by God. The schism between religion and science is, therefore, in part, a disagreement over the existence of meaning. If meaning were to be discovered scientifically, the schism might be healed.

Both the content and method of Kauffman's presentation is much more palatable to the scientific community than are the attempts of the ID movement to use science to argue for design.

Kauffman, who studied philosophy at Oxford, uses his first four chapters to argue both scientifically and philosophically against the adequacy of reductionism. Reductionism is the belief that all explanatory arrows point downward to the most elementary constituents and fundamental laws. Among his many arguments, Kauffman considers Weinberg's dream of a final theory in which basic fundamental principles would explain everything, including the finely tuned constants of nature. He then points out that a more common approach is the so-called "weak anthropic principle" in which our universe, among endless multiverses, by chance has the right properties for life. Although the multiverse approach undermines the goals of reductionism, both approaches make the fine tuning meaningless. Kauffman's beliefs do not allow a search for meaning in the anthropic principle. The word "scientifically" in the chapter 10 quote refers to purely natural processes with supernatural agency excluded.

Nevertheless Kauffman can give many powerful arguments for the sacredness and meaning of nature. Whereas pure chance is the primary explanation for the weak anthropic principle, chance plays a more minor role in Kauffman emergence theories. Chapter 5, "The Origin of Life," argues that there are emergent, spontaneous, self-organizing processes involving so-called downward causation in which a system's complexity creates constraints which are partially causal. This creates totally new phenomena beyond the explanatory power of natural laws of physics, but does not violate these fundamental laws. Chapter 6, "Agency, Value, and Meaning," follows from Kauffman's discredit of reductionism. The teleological language refers to autonomous agents within nature. Kauffman believes agency arose in evolution. Chapter 7, "Cycles of Work," digs deeper into the concept of agency, how one molecule instructs another. Kauffman also looks at the meaning of "information."

Chapter 9, "Nonergodic Universe," argues that all the happenings in our universe are not repeatable and that not everything that can happen will happen. Chapter 10 is a culmination of the first nine chapters, discrediting determinism ("simple happenings") of physics and opening up the sacred. Here Kauffman makes a big issue of Darwinian pre-adaptations. These are incidental features of a complex system which turn out to have selective significance when their environment changes. He clarifies his case for causally anomalous happenings, not governed by natural laws and also not algorithmic (not formulated mathematically). For example, he considers Michael Behe's so-called irreducibly complex bacterial flagellum as a pre-adaptation. He points out that one cannot use probability statements about pre-adaptations (not algorithmic) and therefore the important probability arguments used by the ID movement are in error.

In the second half of the book, Kauffman extends his ideas to areas in which he lacks expertise: the economy,

mind, quantum brain, theodicy, ethics (where Kauffman has a strong philosophical background), and morality. Other issues are C. P. Snow's two cultures, the humanities and natural sciences, that Kauffman wants to bring together through their commonality, and a global ethic dealing with the environment. The primary goal of this book is to heal the schism between science and religion. Kauffman sees the importance of religion in the history of civilization, but he is also obsessed with the evils of fundamentalism in religion. Elsewhere (www.templeton.org/belief) he says,

> I believe that reinventing the sacred is a global cultural imperative. A global race is under way, between the retreat into fundamentalisms and the construction of a safe, shared space for our spirituality that might also ease those fundamentalist fears.

What disturbs me most about this book is that Kauffman has a naive, faulty view of the God of the Bible. He subsequently hopes that he can get many fundamentalists to replace their personal Savior with a fully natural pantheistic god. Setting this aside, I think we can learn from Kauffman about his deep insights into complexity theory, and gain a better understanding of how our personal God works in creation and possibly how we as humans have free will.

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ADAM'S ANCESTORS: Race, Religion, and the Politics of Human Origins by David N. Livingstone. Baltimore, MD: The Johns Hopkins University Press, 2008. 301 pages. Hardcover; $35.00. ISBN: 9780801888137.

David N. Livingstone is a professor of geography and intellectual history at Queens' University Belfast and surely ranks as one of the most talented and perceptive scholars currently working on the history of science and religion. He has written a marvelous history of the idea of non-Adamic humanity from medieval times to the present.

Although fleeting glimpses of pre-Adamism can be detected earlier, Livingstone essentially begins his account with the European voyages of discovery and the revival of classical learning during the Renaissance. Moderns tend to underappreciate the intellectual jolt Europeans experienced as a result of the encounter with the New Word. A host of exotic new species and landscapes, not to mention the variety of indigenous peoples and cultures, prompted a few thinkers to dabble with the notion that Adam may not have been the progenitor of the entire human race and that non-Adamic peoples might be thriving in other parts of the world.

What started haltingly in the sixteenth century became a major debate by the mid-seventeenth century with the appearance of Isaac La Peyrère's treatise *Men before Adam* (*Prae-Adamitae*) in 1655. La Peyrère claimed that humans existed before Adam, who was only the father of the Jews. In so doing, he not only opened the door for plural origins of human species (polygenism) but also gave impetus to the practice of biblical hermeneutics. The implications were stunning. By allowing extrabiblical considerations to enter into biblical exegesis, La Peyrère entertained a number of heretical notions that called into question the doctrine of original sin. Predictably, his work generated a storm of controversy and a host of critics. But La Peyrère's pre-Adamite project was so conceptually versatile, as intellectual historian Anthony Grafton has noted, that it was enlisted in various forms to challenge such things as the standard reckoning of the age of the world, the manner in which sacred texts should be read, and eventually biblical authority itself.

Pre-Adamite thinking flourished during the eighteenth-century Enlightenment, as La Peyrère's speculations were imported into the realm of cultural politics. Underlying the various scientific concerns were "political fixations" (p. 79). Thinkers elaborated moral maps of the globe, based, for example, on the notion that inhabitants of northern climates were morally superior to the "people of indolence" from the tropics. Others used claims about human origins in their debates about the morality of slavery.

There was an extraordinary conceptual realignment in the nineteenth century. Pre-Adamite arguments moved "from heresy to orthodoxy, from skepticism to apologetics" (p. 91). Pre-Adamism was used to harmonize science and religion and protect the Bible "from the results of infidel science" (p. 80). For example, it was employed to preserve the integrity of the Genesis narrative in the face of geologists' claims of deep time. With Darwin things got even more interesting: evolutionary or monogenetic pre-Adamism emerged. "For a significant body of opinion," Livingstone maintains, "the coming of evolution meant the birth, not the death, of Adam … Adam had a navel, for Adam had ancestors" (p. 137). Wishing to retain something of the Genesis narrative while also embracing evidence for human evolution, some Christian thinkers adopted a position that is still invoked today in conservative theistic evolutionary circles: Adam "was physically born of pre-Adamite parents but was the first recipient of a truly human soul" (p. 167).

The second half of the nineteenth century saw the heyday of pre-Adamism, not only because it was embraced in harmonizing schemes, but also because it was pressed into the service of racial supremacism. Throughout the book, Livingstone clearly demonstrates that to understand pre-Adamism one must appreciate its versatility and adaptability. In addition to being incorporated variously in the dialogue between science and religion, pre-Adamism was often enlisted to support racist notions and practices of the foulest nature.

Pre-Adamite thinking did not end with the nineteenth century. It can still be found in the thinking of many who struggle to salvage some sense of a historic Adam that is consistent with scientific evidence. And, regrettably, racialist pre-Adamism is present in noxious fringe groups such as the Christian Identity movement.

Adam's Ancestors is a model of meticulous historical scholarship. It is greatly enhanced by a geographer's sensitivity to the role of place in intellectual history. But it is more. Livingstone inserts perceptive normative analysis in his genealogy of an underappreciated idea. He argues that harmonizing systems of science and religion are not simply "bridges between two independent domains"

(p. 138); they are mutually transformative. "Harmonizing schemes are not to be thought of as passively zipping together two separate sets of belief. They are, rather, agents actively fashioning both scientific theory and religious doctrine into new forms" (p. 220). They dispose their advocates to certain explanatory alignments, both scientific and theological; indeed, they "transform the very notions they seek to unite" (p. 221). No doubt many readers of this journal will concur.

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THE BIBLE, ROCKS AND TIME: The Geological Evidence for the Age of the Earth by Davis A. Young and Ralph F. Stearley. Downers Grove, IL: IVP Academic, 2008. 510 pages. Paperback; $30.00. ISBN: 9780830828760.

This book should not have been written. Or let me rephrase things: It should not have been necessary that this book had to be written. Or let me even re-rephrase things: I am sorry that this book had to be written, but I am so glad that it was written and that it was done in such a splendid fashion.

The Bible, Rocks and Time: The Geological Evidence for the Age of the Earth is authored by two earth scientists, Davis A. Young and Ralph F. Stearley, deeply committed Christians in the Reformed tradition, who taught alongside each other for many years at Calvin College, in Michigan. Their aim was simple. First, they wanted to show the great age of the earth, as established by the best science and as collaborated by so many fields of inquiry. Second, they wanted to tackle head-on the objections that are brought today by the biblical literalists, supporters of the position known as young earth creationism (YEC). Third, and most importantly, they wanted to show that Christians cannot merely accept modern science but can rejoice in it. It comes through the use of our senses and our intelligences, the very things that make us in the image of God, and something that testifies to his creation and glory. YEC is not merely bad science. It is bad religion also.

The book is divided into four parts. The first, Historical Perspectives, leads us through the history of geology, from the beginnings at the time of the Scientific Revolution in the seventeenth century, through the nineteenth century and on to the twentieth century and to the great importance of molecular theories, especially about the decay of materials from one form to others. (There is much more on the actual science in later chapters.)

Next comes Biblical Perspectives. Here the authors are treading a fine line. They want to break with the early chapters of Genesis taken as science. Yet clearly they want to accept much of the Bible as true, meaning really true and not just symbolic. Take Adam and Eve. I can see going all the way from saying Adam and Eve literally existed only on the sixth day and then the drama started, to saying that in some sense there was a pair (or perhaps a group) who were the first humans and who sinned, to saying that Adam and Eve are purely metaphorical and that our sin (which is very real) is in some sense a part of human nature, a natural part of human nature. For myself, as someone raised a Quaker (and hence more keen on the inner light than on the word of the Bible), I suspect that my preference would be for a more liberal interpretation than that of the two authors. The strength of a book like this is that it does not give final answers but challenges you to think again about these issues. What is this if it is not exercising your God-given talents?

We move on to Geological Perspectives which includes lots of information about fossils and the geological record. George McCready Price, the Canadian Adventist, who set the terms of the discussion for YEC, used to argue that the fossil record is all an artifact of the flood—the slow organisms like dinosaurs got caught at the bottom of hills, the fast organisms like humans got caught at the top of the hills. Read Young and Stearley on the topic and then realize how silly YEC really is. The point is that it is not just silly, it is boring. Real science, good science, is exciting, it is beautiful. It is hard, it is tough. But then, whoever said that getting at the truth would be easy and simple? Certainly not Saint Paul.

Finally, we have Philosophical Perspectives. Here the authors try to tie together a number of strands, for instance about the nature of geology and the underlying assumptions that scientists make about the order of nature, and about the role and necessity of lawlike thinking. Then, right at the end, Young and Stearley turn to more theological issues, especially about the unity of the picture that God has presented. It is not a coincidence that one finds parallels between the Book of God and the Book of Nature. Their plea is that Christians will recognize this fact and get on with the job of exploring the creation, not denying it.

There were times, frankly, when I found this book rather long. Like most college professors, they rarely use a sentence when a paragraph will do. But their love of their science and their love of their Creator comes through on every page. Anyone who had these men as a teacher was privileged indeed. We are lucky that they shared their learning and their enthusiasm with the rest of us.

Reviewed by Michael Ruse, Lucyle T. Werkmeister Professor of Philosophy and Director of the HPS Program, Florida State University, Tallahassee, FL 32306.

PRACTICAL MYSTIC: Religion, Science, and A. S. Eddington by Matthew Stanley. Chicago: University of Chicago Press, 2007. xii + 313 pages, 16 halftones, 2 line drawings. Hardcover; $37.50. ISBN: 9780226770970.

Anyone who has ever read a book on the relationship of science and religion will appreciate the novelty and detail in this reading of the scientific and religious life of Sir Arthur Eddington (1882–1944). This is no abstract discussion of theological presuppositions versus scientific claims, no continuation of the sterile debate of the warfare thesis of science and religion, nor even a sustained defense of the harmonization of these two. Rather it is an effort to situate the interrelation of science and religion in the life of a single individual living in a particular time and place. What is new about this approach, even

extraordinary, to use an overused word, is the argument that a prior commitment by Eddington to uphold values, nurtured by his Quaker upbringing and the so-called Quaker renaissance, infuses Eddington's pioneering work in astrophysics (and relativity) and his efforts to popularize science. In short, the book is a reading of scientific practice through the eyes of religion. One will have to judge how successful the author, Matthew Stanley, has been in this endeavor. Presently an associate professor at the Gallatin School of Individualized Study, New York University, he has both an M.A. in astronomy and a Ph.D. in the history of science from Harvard University.

When H. E. Armstrong described the doctrine of valence in his entry in the eleventh edition of *Encyclopedia Britannica* (1911), he defined valence as "the doctrine of combining power of the atoms or elementary radicles of which compound molecules consist." Stanley uses the notion of valence to discuss values as the combining power or bridging element between religion and science. The subject is Sir Arthur Eddington, a practicing Quaker and renowned English astrophysicist, living in interwar Britain. At the time, a debate raged between those who advanced a sustained assault on religion and the promotion of scientific materialism, and those who advanced a natural theology harmonizing theology with the latest scientific findings, i.e., socialists versus the Anglican elite. Eddington sought to forge his own way and was strongly criticized by both camps for his efforts.

The first chapter describes the Quaker renaissance which energized the generally quietistic Quaker community to take a more active role in the world. The chapter details the making of Eddington as a religious scientist and his acquisition of "valence values," values which, although contested by others, help illuminate the complexity of the historical issues involved. Subsequent chapters are devoted to one of these critical "valence values" preeminent in Eddington's life: mysticism (chap. 2), internationalism (chap. 3), pacifism (chap. 4), experience (chap. 5), and the place of religion in modern life (chap. 6). These contested values structure and shape the argument of the book. One should not expect a straightforward biographical exposition. In chapter 7, the final chapter, Stanley reflects on the role "valence values" can play in the historiography of the interaction of science and religion. These values ground science and religion in history and overlap in interesting and stimulating ways, but mark well, in Stanley's "central methodological claim," these values are localized in time, form and place. Values are not transcendental, but provide an avenue for "seeing the invisible common ground between apparently separate spheres" (p. 242).

Perhaps one example may whet the reader's appetite. In chapter 2, "Mysticism: Seeking and Stellar Models," Stanley describes Eddington's take on religion: religion is a matter of continually seeking for spiritual truth. The contemporary Quaker emphasis on mysticism and religious experience functions as "the root of true religion." This seeking does not require either the dogmatic certainty offered by proofs of God's existence or a final appeal to inspired Scriptures. Rather it is a continual search for meaning and truths. Stanley argues that Eddington's commitment to the valence value of mysticism translates into a particular scientific methodology. In Eddington's search for stellar models one discovers a pragmatic search for functional models rather than a mathematically deductive approach in which models are derived from first principles, as advocated by his contemporary rival James Jeans who held a mathematical model of truth. For Eddington, both scientific practice and religion are never ending processes. "Seeking, not finding, was the essence of science" (p. 74) and of religion.

By all means, read this fascinating, finely-crafted book.

Reviewed by Arie Leegwater, Calvin College, Grand Rapids, MI 49546.

RELIGION AND THE PHYSICAL SCIENCES by Kate Grayson Boisvert. Westport, CT: Greenwood Press, 2008. 317 pages. Hardcover; $65.00. ISBN: 9780313332845.

In this tenth book in the Greenwood Guides to Science and Religion series, Boisvert emphasizes four themes in the science and religion dialogue. The first is that "things are not what they seem," because both science and religion deal with an "unseen world." Second, she highlights the "Copernican principle" which places Earth and humanity in a less central place. The third and fourth themes are searches for unity and a supreme being. Boisvert also sees the first three themes as characteristics of science itself in the twentieth century, which is her main focus.

The book covers a wide range of topics in the physical sciences that raise philosophical and religious issues. These include the beginning of the universe, the nature of matter, the quest for a unified theory, extraterrestrial life, cosmic evolution, and the fate of the universe. The information presented is mostly accurate, but is covered in a cursory manner with only about ten pages on each item listed. Also, technical terms are sometimes used without being defined. There is a fairly extensive bibliography that could point the interested reader in the right direction to learn more.

According to the introduction, "the book will examine at each step religious responses from scientists and from scholars and leaders in a variety of faith traditions." After briefly describing the science, Boisvert presents philosophical and religious implications raised by scientists. This is often done using the words of prominent scientists. These are interesting, but they do not necessarily reflect the beliefs of most scientists. No evidence is given when Boisvert makes claims about what many or most scientists believe.

In the first six out of eight chapters, Christianity is the primary religious perspective discussed. There are occasional mentions of Judaism (especially Kabbalism), Hinduism, and Buddhism. Islam is almost entirely neglected. Perhaps this is a reflection of the scholarship on science and religion that has been done, but the book does not live up to the expectations that it sets. Also, Boisvert often gives people's conclusions without the reasoning behind them, which is unsatisfying.

The seventh chapter is devoted entirely to the cosmology of Meher Baba, who is mentioned occasionally in earlier discussions of Hinduism. Boisvert justifies this emphasis on a single figure with the claim that "No description of cosmic evolutionary systems would be

complete without including the perspective of a unique modern spiritual figure from India who has written extensively on the subject of creation and its purpose—Meher Baba." She gives a rather glowing description of his work. For example, she writes, "It is hard to imagine a spiritual system more focused on the notion of directionality and divine purpose than that of Meher Baba." Apparently no scientists have commented on Baba's ideas, but that does not stop Boisvert from speculating on what their reactions might be. Boisvert writes that "comparison of different metaphysical systems is beyond the scope of this book," but concludes that chapter with comparisons because of "the special interest taken by Baba in establishing unity among different religions."

The book concludes with thirty-seven pages of excerpts from primary sources. These are provided, "so that the reader may experience firsthand the writings of major religious figures and a leading scientist." In addition to three passages by Meher Baba, there are selections from the writings of Auroindo Ghose, a Hindu spiritual teacher, C. P. Ranasinghe, a Buddhist scholar, Albert Einstein, and Pope John Paul II.

It is refreshing to see a book that goes beyond the discussion of origins. Boisvert has done a good job of identifying an interesting set of issues. However, a much longer book would have been required to do justice to all of them, especially if they were all examined in depth from a wide variety of religious perspectives. The most disappointing thing about the book is the imbalanced emphasis on one perspective. The book's title and introduction give no indication that this would be the case.

Reviewed by Alan J. DeWeerd, Associate Professor of Physics, University of Redlands, Redlands, CA 92373.

Book Notice

THE TWO BOOKS: Historical Notes on Some Interactions between Natural Science and Theology by Olaf Pedersen (ed. George V. Coyne, S.J. and Tadeusz Sierotowicz). Vatican City: Vatican Observatory Foundation (distributed by University of Notre Dame Press), 2007. xix + 424 pages. Paperback; $22.00. ISBN: 9788820979010.

If you have ever wondered how the metaphor of the two books entered our Western consciousness and shaped our habits of speech and reflection, this book, a series of edited lectures given by the distinguished historian of science Olaf Pedersen (1997†), should be of interest. Pedersen taught early physics and astronomy, and established the Institute for the History of Science at Aarhus University. Pedersen challenges the

> authorized picture of the relations between "religion" and "science" as one long struggle between the forces of ignorance and authority against the powers of knowledge and freedom … There has not been one single struggle, but a long series of interactions from the very beginning of the scientific interest in nature, and in these interactions there has been a constant give and take (p. 311).

In the first seven chapters, Pedersen explores this "give and take" beginning with the birth of science, the early church fathers, the Carolingian Renaissance, medieval science and theology, and ending with the early modern science of Isaac Newton. This historical development is covered in fine detail, complete with extensive notes and numerous bibliographic references. The last chapter (chap. 8), "The Impact of Time," explores the development of evolutionary thought and some of the theological reservations this engendered. The book's appendix lists the complete works of Olaf Pedersen. A challenging, but rewarding, read.

Reviewed by Arie Leegwater, Calvin College, Grand Rapids, MI 49546.

Letters

Facing Abominable Mysteries

In his article "Flood Geology's Abominable Mystery," R. Joel Duff presents "a single challenge" to all flood geology models.[1] It is to explain the evidence of fossil succession and the distribution of spores and pollen in sedimentary rocks. While Darwin found the late and abrupt appearance of flowering plants to be an abominable mystery, Duff regards pollen evidence as "an even greater abominable mystery" that flood geologists still need to solve.[2] Some readers may view billions of years of evolution as the only viable alternative and conclude that the flood described in Genesis was either local or mythical. As explained below, there is another alternative untroubled by this challenge, and we can question which abominable mystery is actually the greater.

The article did not include a comparable examination of Darwin's abominable mystery. Duff dismissed it as "no longer such a mystery" and claimed, "Standard geological and evolutionary theories provide a robust explanation for the succession of fossils in the geological column."[3] We can hardly consider the older mystery solved if the reason that flowering plants appear in only the uppermost strata is that they evolved late and abruptly. Why late? Why abruptly? Why was the Cretaceous the right time for flowering plants to begin to flourish? Abruptness is the rule for all life forms, and this is abominable to those who believe in macroevolution because they need to find a glacially slow accumulation of beneficial mutations. This process is purely theoretical and has not been demonstrated through repeatable experiments. Duff did cite ongoing debate over details of angiosperm origins and evolution in his footnote 36, but this hardly explains why Darwin's mystery can now be considered less abominable than the one that flood geologists face.[4] If an abominable mystery left unsolved requires theory revision or even rejection, then why should evolutionists get a pass but not flood geologists?

"Minimization of the miraculous," an axiom Duff mentions in his first footnote, raises a key question. Apart from the work of "creation scientists," has any reputable scientific investigation of origins or any past event ever led to a conclusion that a miracle took place? If the truth is that a miracle has occurred, we can know this by having