Book Reviews

Anthropology & Archeology

EXTINCT HUMANS by Ian Tattersall and Jeffrey Schwartz. Boulder, CO: Westview Press, 2001. 256 pages. Paperback; $30.00. ISBN: 0813339189.

Extinct Humans is a richly illustrated interpretive catalog of fossil australopiths and hominids. More importantly, it represents an attempt to promote a paradigm shift for paleoanthropologists. Christians interested in paleoanthropology will find the book valuable on both counts.

No one is better qualified to write a book like *Extinct Humans* than Tattersall and Schwartz. Tattersall is chairman and curator of the Department of Anthropology at the American Museum of Natural History and adjunct professor of anthropology at Columbia University. His books include *The Last Neanderthal, Becoming Human,* and *The Myths of Human Evolution* (with Niles Eldredge). Schwartz is professor of physical anthropology at the University of Pittsburgh and a research associate at the American Museum of Natural History. He is the author of *The Red Ape, What the Bones Tell Us,* and *Skeleton Keys*. In their particular professional positions, Tattersall and Schwartz have perforce a comprehensive grasp of the entire panoply of hominid fossil remains. They are not focused on a single site, like Olduvai Gorge, to the possible unintentional undervaluing of remains from other sites and other times.

The book contains eight chapters. Chapter 1 surveys the evolution of natural history from Aristotle's *Scala Naturae* to the end of the nineteenth century, when *Homo neanderthalensis* was still the only fossil hominid known other than *Homo sapiens.* T. H. Huxley had proclaimed *H. neanderthalensis* to be a direct ancestor of *H. sapiens*, and the Modern Synthesis that developed during the first half of the twentieth century followed his example in endeavoring to determine where each newly discovered hominid species fit in modern man's family tree. Time and place, rather than the taxonomy of the fossils themselves, were the primary criteria used to assign each new species its place in an assumed linear sequence from great ape to humans.

Chapter 2 describes the authors' challenge to the linear view of human natural history which is assumed by the Modern Synthesis. They here set out their thesis that human evolution was branching and bushy rather than linear; that we cannot construct a reliable family tree showing that any particular hominid species was the descendant of any other particular species. They opt for a cladistic approach: the best we can do is to show nearness of relationship between species by cladograms constructed primarily on the basis of degrees of morphological similarity, with time and place playing only secondary roles.

Chapters 3 through 8, constituting the heart of the book, survey virtually all the important fossil hominids discovered in the past 150 years. Nine (!) different australopiths and eight different species in the genus *Homo* are described with respect to the history of their discovery, their anatomical features (illustrated with a wealth of magnificent color photographs and line drawings), and (where present) their tools and cultural remains. Again and again throughout this multi-chapter survey, Tattersall and Schwartz drive home their point that paleoanthropology cannot ascertain linear, ancestor-descendant relationships with any degree of confidence.

The longest chapter in the book (almost twice as long as any other) is Chapter 7, "Neanderthals and Human Extinction." Tattersall and Schwartz dispute the belief of many paleoanthropologists that Neanderthal is ancestral to modern man, or at least that Neanderthal disappeared by inbreeding with *H. sapiens*. The authors reject this hypothesis, citing a welter of morphological differences between the two to make their case, while at the same time asserting strongly that Neanderthal cultural remains give evidence of art, music, and some reverence for the dead, all truly human traits.

I recommend this book highly to Christians who take science seriously. The illustrated catalog of important fossil hominids alone is worth the price of the book. *Extinct Humans* is also valuable for its fresh perspective on human origins. Tattersall and Schwartz's new paradigm may or may not ultimately prevail among paleoanthropologists, but it is one with which Christians should become familiar, whether or not they agree with the proposition that modern man has evolved in some sense from more primitive primates. Many Christians in science maintain that humans were a special creation physically as well as spiritually; others hold that the physical body of humans was the product of evolution. *Extinct Humans* furnishes no data or insights that will change any Christian's views on that question. Nor will the book shed any light on the spiritual nature or heritage of humans. Tattersall and Schwartz are naturalistic evolutionists to the core, and have nothing to say about humankind's creation in the image of God. But what Christian would expect science to provide insight into questions that are spiritual in nature?

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Ethics

CUTTING-EDGE BIOETHICS John F. Kilner, C. Christopher Hook, and Diann B. Uustal, eds. Grand Rapids: Eerdmans Publishing Company, 2002. 201 pages. Paperback; $22.00. ISBN: 0802849598.

Kilner is director of the Center for Bioethics and Human Dignity; Hook is director of ethics education for the Mayo Graduate School of Medicine; and Uustal is president of Educational Resources in Health Care, Inc. The book is a collection of fifteen essays grouped into four categories: emerging technologies, growing cultural changes, the changing face of healthcare, and proactive perspectives. Each category appears to exhibit a progression from the current medical situation to more futuristic probabilities.

In the section on emerging technologies, it is argued that it would be unethical to hinder research on human genetics xenotransplants, transgenics, artificial intelligence, personhood, cybernetics, and nanotechnology, although there are social, ethical, and legal issues that must be addressed.

The second section deals with cultural issues such as multiculturalism and a bioethical vision. The implications of cultures and belief systems on medical decisions, stem cell research, the anthropological nature of humans, and the dignity of human life at various stages of medical treatment are discussed.

The third section deals with the social and economic changes affecting healthcare. Topics discussed include the financial aspects of managed care, the future direction of healthcare delivery, the growing popularity of spirituality and alternative medicines and their impact on healthcare, the effects of changes in sexual morality, and the spread of AIDS and other sexually transmitted diseases.

The fourth section shifts the emphasis to issues and away from technology. This section includes a look to the future of providing healthcare, the ethical challenges, the media, and public policy challenges. It may be possible to see this section as a capstone to the three previous.

The cumulative thesis of these four sections is not so apparent due to the number of contributions and the variety of topics. The lack of a unifying narrative to pull the essays together is probably the biggest weakness of the book. However, the consistent effort to apply a Christian ethic to both the present and future issues in healthcare and biotechnology will be highly valued by the Christian reader.

This book would be suitable to both generalist and specialist. Young people entering the healthcare scientific fields related to biotechnology will find the book valuable. It would be particularly suitable to those who are in a position involving healthcare and biotechnology policy making. It would be an excellent gift for your local congressman.

Reviewed by Gary De Boer, Assistant Professor of Chemistry, LeTourneau University, Longview, TX 75607-7001.

AT THE BEGINNING OF LIFE: Dilemmas in Theological Bioethics by Edwin C. Hui. Downers Grove, IL: InterVarsity Press, 2002. 385 pages. Paperback; $24.99. ISBN: 083082667X.

Hui has M.D. and Ph.D. degrees and is a professor at Regent College in Vancouver, Canada. The publisher's book description correctly states that this book is "for anyone who wants to think through the biomedical ethical issues of human life at inception on a profoundly Christian basis."

The book is divided into three parts. The first part deals with the meaning of personhood. Its approaches the issue primarily from a philosophical viewpoint but also with some biological perspective. The book convincingly argues that personhood begins at conception. The arguments are carefully laid out with much intellectual rigor but without any hint of emotion.

The second part of the book sets out many fascinating issues surrounding assisted reproduction. These issues include artificial insemination, *in vitro* fertilization, embryo transfer, surrogate motherhood, embryonic manipulation, human cloning, stem cell research, and the human genome project.

The third part of the book discusses abortion in light of the author's view of personhood. This is not a book with easy and clear-cut answers to the questions surrounding the abortion issue. The author first presents both of the extreme viewpoints of abortion, and then discusses many difficult issues that surround the controversy. These issues include rape, socioeconomic factors, genetic defects, and contraception. Although the author believes that personhood begins at conception, he does not conclude that abortion is always wrong.

This is a book that far exceeded my expectations. An educated layperson without any medical training will be able to follow the author's thought process and arguments. The author has written a Christian book that is educational, insightful, and thought provoking. He thoroughly discusses many fascinating issues surrounding bioethics from the perspectives of biology, theology, philosophy, and sociology. I highly recommend this book.

Reviewed by Dan Simon, Assistant Professor of Electrical Engineering, Cleveland State University, Cleveland, OH 44115.

BIOETHICS FROM A FAITH PERSPECTIVE by Jack Hanford. Binghamton, NY: The Haworth Pastoral Press, 2002. 147 pages, index. Paperback; $19.95. ISBN: 0789015102.

About a dozen years ago, my university revamped its General Studies Program and included a mandatory senior capstone course on ethics. At that time I developed and began teaching an "Ethics in the Sciences" course to meet that requirement for our majors. One of the biggest challenges of the course has been to find a text that covers the current ethical challenges facing such topics as science and medicine from a Christian perspective. It was thus with great anticipation that I began reading this book as I hoped it would prove suitable for the course. While I am sure that the book will prove useful to budding ethicists and those with a strong background in philosophy and ethics, I am afraid that it will not provide much use for either science students or the pastors and medical practitioners it seems designed for.

As stated in the Introduction, the purpose of the text is to "show the relevance, significance, and guidance that a faith perspective can offer for dealing with bioethical issues." It attempts to do this through five specific objectives that are dealt with in an overlapping manner in twelve chapters ranging from 3 to 18 pages in length.

While a scientist by training, I had hoped that my minor in Bible, several undergraduate philosophy courses, and over a dozen years of teaching and reading in this area would allow me to understand and apply the material presented in the first five chapters of the text. Unfortunately, it did not as the discourses on the stages of moral development, technical-ethical distinctions, faith perspective, the similarities and distinctions between moral development and faith development and the discussion of whether

Fowler's "faith" meets the definition of "Christian faith" left me befuddled. More importantly, it made me wonder how the typical pastor, medical practitioner, or undergraduate science student would benefit from these chapters. Several excellent points are made here, however, and their further development would have strengthened the text's usefulness. Hanford's recognition of the state of medical ethics, the problems associated with managed health care, and the exclusion of the Christian faith from the public discourse on these issues is right on. His well reasoned discussions of why the Faith of the Bible can and must be used in these areas would, if developed further, be an asset to any Christian involved in these discussions.

In the next five chapters, Hanford seeks to address the ethics involved in transplants, mental health and managed care, genetics, medical technology and care of the elderly. There are several good points made in these sections such as his suggestion that the church become the focal point for securing donated organs. However, the majority of the material suffers from unevenness and inconsistency in the depth, breadth, and manner used in approaching and presenting each topic. As I look over this material again, I am beginning to wonder if perhaps this is due to these chapters being the result of separate presentations, each given for a different type of audience or intent, that have been pulled together for this book.

The final two chapters deal with developing bioethics from a "faith perspective" for pastors and nurses. The author's most salient points revolve around his understanding of the anti-intellectualism of much of the church, the anti-faith bias of academia and the lack of ethics training in America. His solutions are interesting, including an increase in the admittance standards at seminaries, increased academic rigor, and a sort of AMA for pastors to maintain those standards. In discussing the nursing profession, he recognizes the critical role they play and affirms the importance of faith in their profession. However, a pastor or nurse would find little that would truly impact the way they do their jobs or assist them in applying their faith to their professions.

Therefore, those interested in the purely theoretical aspects of bioethics, in summaries of the ethical views of writers in the field or in what the author has written or taught throughout his career might find this text of interest. I am afraid, however, that those of us seeking assistance in developing a practical ethical approach to specific issues, based on Biblical principles, supported by Scripture, will not find much of use.

Reviewed by Scott S. Kinnes, Professor of Biology, Azusa Pacific University, Azusa, CA 91723.

FAITH & SCIENCE

FAITH IN SCIENCE: Scientists Search for Truth by W. Mark Richardson and Gordy Slack, eds. Foreword by Ian Barbour. London: Routledge, 2001. 206 pages, bibliography. Paperback; $15.95. ISBN: 0415257654.

"The whole idea of interviews is in itself absurd," the English man of letters Anthony Powell once noted. Whatever meager insights one may glean from them too often come at the expense of clarity and nuance. So say the critics of the genre.

I am not one of them. To be sure, at their worst, published interviews can be the print equivalent of sound bytes, capturing unguarded comments people might otherwise have hesitated to make. But, done properly, an interview can be an effective vehicle for informative conversation in the loose, unbuttoned style one might expect between colleagues over a cup of coffee.

Faith in Science illustrates the value of a collection of interviews done well. Science writer Gordy Slack and philosopher Philip Clayton interviewed twelve distinguished scientists in 1998 as part of the Science and Spiritual Quest (SSQ) program. *Faith in Science*, which serves as a companion volume to *Science and the Spiritual Quest: New Essays by Leading Scientists* (published by Routledge), explores the interface between scientific inquiry and scientists' religious and/or spiritual quests.

This collection of interviews demonstrates the great diversity of outlooks and opinions that scientists hold when addressing questions related to science and religion. In addition to a variety of Christian viewpoints (ranging from those of biologist and former Catholic priest Francisco Ayala to Lutheran computer scientist and theologian Anne Foerst to Congregationalist Nobel laureate in physics Charles Townes), the editors included interviews with three Jewish scientists (including Nobel laureate in physics Arno Penzias), two Muslim physicists (Bruno Guiderdoni and Mehdi Golshani), and a paganist (virtual reality theorist Mark Pesce).

Since diversity seems to have been one of the editors' chief selection criteria, it is not surprising that no single theme, beyond that of diversity, can be drawn from the book. But there are interesting threads that appear in some of the interviews. Several scientists noted the limits of science as a way of knowing and thinking. Penzias, for instance, confessed that while science provides powerful descriptions of the world, its descriptions will always be incomplete (p. 22). Muslim astrophysicist, Bruno Guiderdoni, used the insights of Bernard d'Espagnat to suggest that reality is veiled; it is never fully accessible to scientific investigation (p. 73). Another related concern was whether science supports the view that the cosmos and life have purpose and meaning. Predictably, the answers were varied.

Another value of *Faith in Science* is that it provides a revealing glimpse of the state of science and religion in the late 1990s. Slack and Clayton's questions were just as illuminating in this regard as the answers they elicited. Clearly, questions related to divine action, the purposefulness of the universe, and the impact of evolutionary thinking on religious views of humanity were central to the field. The degree of fatigue that one sometimes encounters these days when similar questions are raised suggest that the "answers" given in the 1990s were probably not all that satisfactory—exhausting, perhaps, but certainly not exhaustive.

A question kept coming to mind as I read these provocative interviews. What does the preposition "in" suggest in *Faith in Science*? Surely, faith in science means something quite different than faith and science. Is faith in science a goal of science and religion?

It seems that many religious scientists interviewed continue to resort to stances they may well have adopted prior to the vast outpouring of science and religion literature of the 1980s and 1990s. That is, many either functionally compartmentalize their science and their faith, or they cast both in vaguely complementary terms. To the extent that science and religion embrace different methods and epistemologies, efforts to go beyond a loose complementarity—if that is indeed the goal of the science and religion project—risks doing violence to the limits of these different ways of knowing. And if that is so, what is the basis for hoping for anything approaching consonance between them? A few of the interviewed scientists hinted that the conversation between science and religion may well be prompting both a new science, one that is open to beauty and goodness, not just truth, and a new theology, one that recasts traditional notions in new light. If this indeed is happening, then there is hope for faith in science, as well as, presumably, science in faith. But will it be the kind of faith worth believing in?

Clearly, these concerns should not be laid at the feet of the editors of this volume of interviews. But it is the sign of a good book that it provokes the reader to go beyond its specific argument to think about larger implications. Because *Faith in Science* does this, it deserves a broad readership.

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BIOLOGY THROUGH THE EYES OF FAITH by Richard T. Wright. San Francisco: Harper San Francisco, 2003. 300 pages. Paperback; $12.00. ISBN: 0069696958.

With a Harvard University doctorate in biology, Wright, an ASA member and emeritus biology professor at Gordon College, has spent much of his life attempting to correlate his knowledge and his faith. This book updates his original 1989 edition, part of a series approaching various disciplines "through the eyes of faith," under the auspices of the Council for Christian Colleges and Universities. Explosive developments in these fields have made the first edition obsolete, making the publication of a second edition especially relevant. A nine-page index plus copious notes and discussion questions enhance the pedagogical value of this book.

Wright states three goals: (1) To "explore in some depth the biblical message of creation and relate it to the current understanding of origins;" (2) To "bring out the biblical message of dominion and show how it applies to interactions of the life sciences with society in medicine, genetics, and environmental concerns;" and (3) To "examine what it means to be involved in redeeming God's creation and reforming our culture and science."

Early chapters cover "Biology and Worldviews," "God and His World," "The Scientific Enterprise," and "Relating Science and Christian Thought." Subsequent chapters focus on four "revolutions": Darwinian, biomedical, genetic, and environmental. Four of the thirteen chapters deal with various aspects of origins, and three with environmental issues.

Jerry Hess commends the book because it "avoids the penchant for encyclopedic perspective and focuses on major issues related to science and Christian faith in a concise and understandable manner." Hess likes the book so well that he says: "If the book is used in several courses during a student's college career, the impact of reading *Biology Through the Eyes of Faith* will be maximized." The book supplements secular biological textbooks instead of aiming to supplant them.

Since ASA members hold a range of views, some will agree and others disagree with Wright's interpretation. He presents several possibilities, but seems to favor the view he summarizes:

> God creating humans … through a God-guided process of evolution … In God's timing, he chooses people from a Neolithic culture in the Near East, confers on them his image (full capacity for fellowship with God), and places them in a garden … Many are able to accept the first few chapters of Genesis as allegory or mythology and still maintain their strong Christian faith (p. 165).

ASA members whose philosophy of origins excludes *Homo sapiens* and perhaps other species from the evolutionary lineage will differ with Wright. For example, the Wheaton College Statement of Faith says: "We believe that God directly created Adam and Eve, the historical parents of the entire human race; and that they were created in His own image, distinct from all other living creatures, and in a state of original righteousness." Those who are inclined toward that view will find Del Ratzsch's *Science & Its Limits: The Natural Sciences in Historical Perspective* (Downers Grove, IL: InterVarsity, 2000) more in line with their interpretation of Scripture.

In addition, Wright and Ratzsch differ on their attitudes toward methodological naturalism. Wright says:

> The progressive-creation and evolutionary-creation paradigms are both compatible with modern science, although only evolutionary creation endorses the approach of methodological naturalism, where only explanations from within the natural world are admitted as legitimate science. This does not deny that God may have used supernatural means in origins; it just refuses to consider such an explanation as scientific.

Some ASA members will prefer Ratzsch's discussion of Christian reservations about methodological naturalism (pp. 122–9 of his book). Professors may want to compare these two before deciding which book, or which segments of each book, to assign to their classes.

Wright moves beyond the theoretical, to practical aspects of the Christian's responsibility to God in realms of biomedical and genetic advances, plus implications for how we handle the environment. He quotes Cal DeWitt: "If God in the final judgment would ask us a question about the Creation, what might that question be?" Wright asks: "Would he ask us *what we thought about how he made the world,* or would he ask us *what we did with it?"*

Reviewed by Dave Fisher, Trans World Radio missionary, editor "Truth in the Test Tube" broadcast from Russia and China, and co-editor of The Newsletter of the ASA & CSCA.

THE GOOD IN NATURE AND HUMANITY: Connecting Science, Religion, and Spirituality with the Natural World by Stephen R. Kellert and Timothy J. Farnham, eds. Washington: Island Press, 2002. 278 pages, index. Hardcover; $28.00. ISBN: 1559638389.

This book is the outcome of a conference, "The Good in Nature and Humanity," held at Yale University in May 2000. It originated in the conviction that modern society's environmental and spiritual crises will not be understood nor resolved until the divide between faith and reason is breached and science and religion are effectively reconciled. Included among the twenty contributors to the volume are some of North America's most published writers on the subject.

Chapter one is an attempt at bridge building between science and spirituality. It examines some of the things that divide—science's reductionism and religion's dogmatic inflexibility—and some that unite, including respect and reverence for the natural world, a shared sense of wonder. The main body is divided into three parts: Scientific and Spiritual Perspectives of Nature and Humanity; Linking Spiritual and Scientific Perspectives with an Environmental Ethic; and From the Perspective of the Storyteller. Endnotes provide biographical details of contributors, as well as subject and author indexes.

The book's value lies, not in any consensus reached on spirituality nor in any agreed actions to avoid environmental disaster, but in presenting a cross-section of contemporary views on science and spirituality and the growing awareness that the world now seems ready to accept faith and reason as complementary approaches.

I recommend the volume as a thought-provoking, and at times inspiring, sample of divergent modern thinking on the subject. There are some literary gems, such as: "But ultimately, this great mystery of religion and religious experience lies beyond the vision of even our most powerful microscopes and telescopes—like dark matter, it eludes detection. It is as elusive as the human heart, as stunning as the discovery of relativity, as unique as a fleeting snowflake, as alluring as a loon's call, as beautiful as clouds at sunset, and as haunting as a forest at night" (p. 70). The book could almost be dedicated to the memory of Aldo Leopold, the most frequently quoted author.

Topics range widely: world religions, environmental values and ethics, intergenerational justice, cosmology and cultivation, geology and theology, work and worship, hunting and spirituality, Gaia, biophilia, global economics, map making, and much more. Issues are complex: "… don't make the mistake of thinking you, or I or anyone, knows how the world is meant to work. The world is a miracle, unfolding in the pitch dark. We're lighting candles" (p. 240).

There is much here to challenge and sharpen our thinking. Common assumptions linger, for instance, that description of evolutionary process automatically rules out purpose. Some find "not the slightest scrap of hard evidence" that spirituality is not a delusion (p. 99). For others, ultimate spiritual reality seems to be no more than our total human response to nature (p. 169). Are we in danger of taking a utilitarian approach? Is spirituality to be embraced not because it is true but because it is part of universal human evolutionary behavior that enhances our chances of survival (p. 49)? Are we denied the possibility of making universal truth claims (p. 23)? Must religion play a supporting secondary role, with only science and technology indispensable to the task (p. 65)?

There is, however, also much to encourage us, with affirmations of "a personal God who knows and loves all into being …" (p. 109), and calls for us to express our wonder at and celebration of creation. The approach is science-based; I found no vague New Age type spirituality, but rather a sensitive view of nature as an essential element in spiritual health, where "the fresh-air sanity of natural wildness is our best, perhaps our only, antidote to the suffocating cultural pathology we euphemize as civilization" (p. 186). The current spiritual quest is of critical importance to life on Earth: "our success in gaining access to our deepest wisdom … will truly dictate what life will be like for all future generations" (p. 158).

Reviewed by Bryan Ezard, Linguistic and Translation Consultant, Summer Institute of Linguistics, Australia.

NATURE, HUMAN NATURE, AND GOD by Ian G. Barbour. Minneapolis: Fortress Press, 2002. 170 pages. Paperback; $12.00. ISBN: 0800634772.

Barbour is Bean Professor Emeritus of Science, Technology, and Society at Carleton College, Northfield, Minnesota. He has written *When Science Meets Religion* (2000), *Religion and Science: Historical and Contemporary Issues* (1997), and the *Giffard Lectures* (1993 and 1995). His books have been translated into some foreign languages. In addition, Barbour has authored articles on the topics of science, technology, and religion, and he has been interviewed on national television and radio outlets.

Barbour states in the introduction that the aim of this book is to develop the idea of integration of science and religion. In his previous books, he has discussed how science and religion sometimes conflict and require dialogue for interfacing. To address integration over a broad range of topics, Barbour divides this book into five sections in which he discusses evolution, genetics, neuroscience, artificial intelligence, ethics, and environmentalism. Each section is well documented. Barbour relies heavily on the process theology of Alfred North Whitehead throughout the book. One of the five sections is completely devoted to the ideas of process theology and its relation to the understanding of nature and human nature.

The idea of process theology describes God's nature and evil in a way that may differ from many Christians' traditional understandings. The idea ascribes limitations to God's power as a consequence of God's contribution of empowerment to his creation. Barbour writes that "… process thought suggests that the limitations of divine power are the product of metaphysical necessity rather than voluntary self-limitation." The emphasis is on the integrity of creation which reflects the creator. Therefore, discontinuities in that created design are less necessary if the design itself allows for the process of God's work. An example may be of God working within the uncertainties within systems described by quantum mechanical theory. The process system has implications for human nature in addi-

tion to the nature of God and the cosmos. The characteristics of human nature and the ability of people to choose their actions within the confines of genetic determinism are discussed.

Barbour is quite knowledgeable about current integration efforts. The strength of the book lies in its attempt to integrate characteristics of fundamental scientific theories with a model of an understanding of God and humanity. This strength may also become a weakness as immanence, God's prominence in creation, is emphasized over transcendence, God's existence beyond the created universe. (Whitehead believes in a transcendent God.) Nonetheless, I am sure that some readers may be uncomfortable with the fine line between process theology and pantheism.

This book is suitable for laypersons and professionals, particularly those interested in integration or process theology. Neophytes may find the book a bit too dense and may wish to refer to some of Barbour's earlier works.

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A SCIENTIFIC THEOLOGY: Reality, vol. 2 by Alister E. McGrath. Grand Rapids, MI: Eerdmans Publishing Co., 2002. xvii + 343 pages. Hardcover; $50.00. ISBN: 0802839266.

This is the second volume of a work in process that will eventually comprise three volumes. The first volume, *Nature*, appeared in 2001 and was reviewed in this journal in September 2002. This second volume explores the notion of realism in both science and theology. The three volumes are a scientific theology because they are informed by the methods and mindsets that can be brought from the study of science to inform the study of theology. In particular, in this volume, McGrath argues that just as the methods of science assume an objective reality to be discovered and understood, so theology can be conceived as a study of what can be observed of God. To say this in another way, the author describes his focus in this second volume as being on the epistemological and ontological status of the real world. The first volume laid a foundation by considering the theological view of nature or creation. And the third volume will show how to build a theoretical framework around these ideas.

This volume does not present part of a detailed Christian theology covering the traditional topics. Rather, the project strives for an understanding of an approach to theological reasoning. McGrath is strongly committed to realism—the universe and God really exists and can be studied—but presents his analysis in a post-Enlightenment, postmodern context. Simple objective approaches to realism have been invalidated, but radical responses that no reality can be found or known are also unacceptable. An important shaping influence on his thinking is the *critical realism* of Roy Bhaskar.

The author explicitly goes beyond a theistic position that sees God only as creator of the knowable universe, arguing specifically for a scientific theology that incorporates the distinctive emphases presented by the teaching about Jesus in Christian revelation and tradition. The book is based on wide reading in science, theology, and other fields, and is extensively documented. There are 730 footnotes, and a bibliography with 317 entries. Curiously, there is more material used in the body of the book than appears in the bibliography (for example, Richard Dawkins appears in the index but the book cited in the body of the text, not just in footnotes, in the pages referred to by the index does not appear in the bibliography). I have not been able to infer the criteria used to determine what appears where (more than half of the works cited in the first fifteen footnotes of the first chapter are not in the bibliography). I suggested in reviewing the first volume that a presentation would be welcome for more general readers that did not include the extensive response to previous work—and the extensive documentation required to support that analysis. A private communication sent from the author in response suggests that such a publication may be prepared after the third volume is complete, and I still believe it would be welcome.

This is a valuable book that is, like the companion previous volume, worthy of careful study. It has stimulated me to think more precisely and also to read further in some of the materials it references. I look forward to reading the final volume.

Reviewed by David T. Barnard, University of Regina, Regina, SK, S4S 3X4 Canada.

HISTORY OF SCIENCE

EVOLUTIONARY THEORY AND VICTORIAN CULTURE by Martin Fichman, Amherst: Humanity Books, 2002. 224 pages. Paperback; $21.00. ISBN: 1591020034.

Fichman is a professor of humanities and history at York University. He has written at least two other books: *Science, Technology and Society* and *Alfred Russel Wallace: A Biography*. This book is a study of the cultural controversies on the meaning of evolution. There are eight chapters which cover topics like evolutionism in cultural context, social Darwinism, Transatlantic evolutionism, human evolution, the differences between Wallace and Darwin, evolutionary ethics and religion. The final chapter is on contemporary debates.

The book begins by noting that the eighteenth century saw the rise of the earliest modern attitudes towards science. D'Alembert, Voltaire, and Hume among others led the way in advocating a greater control over the world through science. The nineteenth century saw the rise of the professional scientist. Wallace, Lyell and Darwin were among the first. The professional scientists forged strong links between technology and science, altering the geopolitical power balance. Countries in which this professionalism was most profound were world powers.

But this had implications for the philosophical world as well. Science began to challenge religious beliefs, even though many of the leading scientists were also spiritualists in the broad sense. Increasingly through the century, the common people found themselves less and less able to partake in the great debate because to learn the issues required years of study. Darwinian evolution, however, gave rise to a debate in popular literature about the place

and nature of humanity. A cartoon which appeared in Punch, in which a tuxedoed gorilla is introduced by a stately butler as "Mr. Gorilla," said volumes about the Victorian views on slavery, our relationship to the natural world and the difference between human and animal nature. The cultural debates were held at this level.

Fichman's discussion of the current debate covers young-earth creationism, and the ID movement. It seems oddly out of place and isolated within this volume. And maybe that is how it should be given the title of the book is about Victorian culture. Davis, Kenyon, Behe and Dembski are hardly Victorian figures. I actually found this discussion disappointing because I wanted to read the book to learn about Victorian culture. The author was all over the place temporally, especially in the latter half of the book.

The biggest weakness in the book is the paucity of nineteenth-century documents consulted. Out of 300 references in the bibliography, only twenty-nine are from the nineteenth century. The rest are from twentieth century historians who are interpreting the nineteenth century. Of these twenty-nine, sixteen are from Darwin, Huxley, Lyell and Wallace. If this is modern historical research, it seems to have much in common with the apocryphal story about the medieval scholastics who were arguing, from Scripture, about how many teeth the horse had. A young man suggested they open the horse's mouth and count. They threw him out of the room. It seems that historians no longer have to actually read the primary literature of the period of their researches. This book is good for a review of twentieth century viewpoints of what Victorian culture was like. It lacks the authentic feel of actual Victorian life.

Reviewed by Glenn R. Morton, Ramsden Lodge, 103 Malcolm Road, Peterculter, Scotland AB14 0XB.

WORLDVIEW: The History of a Concept by David K. Naugle. Grand Rapids, MI: Eerdmans Publishing Company, 2002. xxiii + 384 pages. Paperback; $26.00. ISBN: 0802847617.

Naugle, professor of philosophy at Dallas Baptist University in Dallas, Texas, shows that our "worldview" influences the way we look at everything, even in the way we look at so-called "objective" proofs. What looks "objective" to one person may be considered "subjective" by another, even when both individuals are Christians. Thus, Naugle concludes that when we do not understand the "worldview" of the person with whom we discuss issues, the discussion is fruitless.

In the first eight chapters, Naugle traces the concept and history of world views. He explains the views of Abraham Kuyper and his followers. Kuyper, a Dutch pastor and theology professor, became Prime Minister in The Netherlands. One of his well-known sayings was "All of life is religion." Many years after Kuyper's death some of his pupils formed the Association for Calvinist Philosophy. Prominent among them was Kuyper's pupil Vollenhoven, whose doctoral thesis was "Mathematical Philosophy as Seen from a Theistic Point of View." In it he showed that no unity of thought existed in mathematical philosophy. Later, as professor of philosophy, he wrote *The Necessity of a Christian Logic*. Still later, in a lecture I attended, he warned against the use of the words "objective" and "subjective" since they are so imprecise.

This book makes it clear that it is not sufficient to assume Christians come from the same perspective when discussing such topics as creation and evolution. Naugle thinks no progress can be made unless we first agree about basic philosophies of life. This is an important book. I highly recommend it.

Reviewed by Jan de Koning, 20 Crispin Crescent, Willowdale, ON, M2R 2V7, Canada.

DEATH AND DENIAL: Interdisciplinary Perspectives on the Legacy of Ernest Becker by Daniel Liechty, ed. Westport, CT: Greenwood Publishing Group, 2002. 301 pages. Hardcover; $66.95. ISBN: 0275974200.

Everybody dies. Humans are aware of this, and it creates terror in them. This ever-present fear of death, though it may not be conscious, is the motivating force behind every act. This is the core thesis of Ernest Becker's Pulitzer Prize winning book, *The Denial of Death*. Since the book was first published in 1973, *PSCF* readers might ask why is it mentioned here. Because this book has spawned a school of thought (Generative Death Anxiety) and national organization (Ernest Becker Foundation) to perpetuate and investigate the implications of Becker's theory, it is essential for an understanding of *Death and Denial*.

Becker's theory is reductionistic in that it explains everything by one organizing principle. It has been supported by some research. One of its central ideas is summarized by Otto Frank's maxim, "To be able to live one needs illusion." This is because the fear or terror of death is so overwhelming that it would be paralyzing if not controlled by heroic illusions. Becker describes humankind's dismal state in *Escape From Evil*: "Life on this planet is a gory spectacle, a science-fiction nightmare in which digestive tracts fitted with teeth at one end are tearing at whatever flesh they can reach, and at the other end are piling up the fuming waste excrement as they move along in search of more flesh."

In the preface to his book, Becker refers to Samuel Johnson's famous observation that the prospect of death wonderfully concentrates the mind. This prospect has led Becker to believe that people never fully live because their "deepest need is to be free of the anxiety of death … but it is life itself which awakens it and so we must shrink from being fully alive." Jesus came to earth to "free those who all their lives were held in slavery by their fear of death" (Hebrews 2:15).

This present book is a collection of twenty-five essays by scholars from a variety of disciplines who discuss how Becker's theory has impacted their fields of interests. The basic idea emerging from their various considerations can be summarized in one long sentence: people's awareness of their mortality produces anxiety which leads to repression which leads to idiopathic psychic energy which leads to creativity, heroism, hostility, racism, religious chauvinism, violence, and other expressions of normal and pathological behavior. Specific topics integrated with Becker's

thoughts include science, evil, forgiveness, neurotic types, psychotherapy, heroes, toxic leaders, Buddhism, God, and illusion. Articles of potential and particular interest to Christians include Sally Kenel's "Reality Check: Mortality Awareness and Christian Anthropology" and Jerry Piven's "Transference as Religious Solution to the Terror of Death."

In this review, a great deal of attention has been focused on Becker because those unfamiliar with his thought will not be attracted to this book. While this book discusses a morbid subject, it is not altogether depressing. It has some salient and trenchant ideas which can provide insights into some of life's most baffling conditions and behaviors. The writers of this compendium expand and apply Becker's thoughts to a variety of situations and thinkers from any discipline will profit from reading it.

Reviewed by Richard Ruble, John Brown University, Siloam Springs, AR 72761.

THE MAN WHO FOUND TIME by Jack Repcheck. Cambridge, MA: Perseus Publishing, 2003. 229 pages, appendix, bibliography, acknowledgments. Paperback; $26.00. ISBN: 073820692X.

This book is a biography of James Hutton, the eighteenth-century Scot who first proposed and demonstrated that the processes of orogeny and erosion have been shaping the face of the earth for an unknowable but incredibly long period of time. In Hutton's own words, "As there is not in human observation proper means for measuring the waste [i.e., erosion] of land upon the globe, it is hence inferred, that we cannot estimate the duration of what we see at present, nor calculate the period at which it had begun; so that, with respect to human observation, this world has neither a beginning nor an end." As far as modern geology is concerned, then, Hutton originated the concepts of uniformitarianism and the antiquity of the earth.

Repcheck is a historian and book editor, not a scientist by training; however, he has published a number of geology books at Princeton University Press. He collaborated with several geologists and historians of science in writing *The Man Who Found Time*. It is a popular history, not written for academics. Repcheck has told Hutton's story simply and well.

Despite this, I am sorry to report that the book contains egregious errors of fact, particularly in the background material. Did you know that "the Vulgate … would serve as the basis of the King James Bible. It is still the foundational Christian Bible of all those in use today"? Protestant Bible translators from the King James men on would be surprised to know that. Did you know that "the prophesy [sic] of Elijah … proclaimed that the last two thousand years of the total six thousand would be the Age of the Messiah"? That is not in my Bible. Did you know that "biblical chronology, as the discipline of precise biblical dating was called, was one of the most rigorous 'sciences' of the pre-Renaissance era"? That would have been a surprise to Aquinas, Grosseteste, and Bacon. Did you know that after the fall of Rome "the old Roman Empire held on for another couple of centuries in the guise of the Byzantine Empire"? The latter "fact" would have surprised the Turks, who took Constantinople nearly a thousand years after the fall of the Western Empire. Did you know that Castle Rock in Edinburgh was "easily defended" and that "a surprise attack was simply impossible"? The historical truth is that Castle Rock changed hands a number of times (e.g., Robert Bruce took it from the English) and always by surprise attack.

Other historical assertions are misleading if not flat-out false. Repcheck states: "The King James Bible, first published in the seventeenth century verified [the creation of the earth six thousand years earlier] by placing specific dates for the key events right in the margin." The casual reader is likely to infer from this statement that the King James translators put dates there. Only later does Repcheck mention that Archbishop Ussher came up with the dates that subsequently appeared in editions of the KJV some forty years after its first publication. Again, Repcheck states that "we know" that the Septuagint was the Bible used by Jesus and all of his followers—a dubious claim at best. And he claims that Isaac Newton "[insisted] on utilizing the scientific method, building theories by accurate observation, then verifying them through rigorous yet repeatable experiments." While that may be true of Newton's *opticks*, it cannot be said about the laws of motion and universal gravitation introduced in the *principia*.

I do not mean to be picky, but the glaring historical errors, inaccuracies, and misleading impressions found in the background material call the usefulness of this book into question. While one could presume that Repcheck researched Hutton's life and work more thoroughly than background events, I confess that I am left without confidence that the central part of the book is free from error. *The Man Without Time* is an easy read, and no doubt gives an essentially accurate picture of Hutton's life and work, but the reader should be prepared to read things that just are not so.

Reviewed by Robert Rogland, Science Teacher, Covenant High School, Tacoma, WA 98465.

NATURAL SCIENCE

ENTANGLEMENT: The Greatest Mystery in Physics by Amir D. Aczel. New York: Four Walls Eight Windows, 2002. 302 pages. Hardcover; $25.00. ISBN: 1568582323.

Former ASA Annual Meeting keynote speaker, the Nobel-Prize-winning physicist William D. Phillips, said: "Entanglement—along with superposition of states—is the strangest thing about quantum mechanics." This is also the opening quote from the chapter of Aczel's book on the quantum possibilities of teleportation, "practiced" routinely in sci-fi such as *Star Trek*. But before he engages in speculative applications of quantum mechanics, Aczel explains for a general readership the strange phenomenon of entanglement, named originally by Erwin Schrödinger, whose famous equation describes the quantum wavefunction of a particle.

Entanglement is a relatedness between particles that share a common experience, such as photons emitted simultaneously from the same atom. Though separated by distance, these particles somehow "stay in touch" with each other. These photons, though they travel away from each other, maintain what Einstein deridedly called a "spooky action at a distance." They continue to exhibit behavior that shows they maintain a relationship that is independent of distance and is immediate. Though entanglement does not allow the communication of information exceeding the speed of light, it violates the spirit if not the law of special relativity.

The phenomenon was first discovered by Thomas Young in the early 1800s, with his famous double-slit experiment, which is still a mystery over two centuries later. Young demonstrated that if a beam of electrons were directed toward two thin slits in a plate, that they formed a wavelike interference pattern on a screen behind the plate. The electrons behaved like waves. If either slit were blocked, the electrons would form a single distribution behind the open slit, as expected of a particle beam. The intriguing question is: which slit does a particular electron go through to contribute to the wave pattern? And quantum theory says: both slits, as though their separation were not an issue. This suggests the nonlocality property of entangled particles.

In the style of George Gamow's *Thirty Years That Shook Physics*, Aczel sets forth the personalities (with photos) and their arguments and accomplishments (with illustrations) that map out the history of this strange phenomenon. Einstein, Podolsky, and Rosen wrote a famous physics paper ("EPR") that drew a clear line in the sand for quantum mechanics by those who opted for hidden variables to account for these strange aspects of quantum mechanics that contradicted large-scale physics. Decades later, John Bell wrote a paper, introducing Bell's inequality, which offered a route for experimentally deciding whether Einstein or Neils Bohr was right. Aczel describes the work of entanglement physicists up to the twenty-first century, and their experiments that show beyond doubt that something "spooky" really is going on—and that it is even beginning to be used for practical applications such as encrypted (secret) transmission of information. A recent experiment involving entanglement of three particles raises the question of the extent to which particles entangled as a single quantum system can be scaled up to the macro level.

Some physicists covered in the book, many personally interviewed by the author, are John Wheeler, Anton Zeilinger, Michael Horne, Abner Shimony, Alain Aspect, P. K. Aravind, Danny Greenberger, Nicholas Gisin, Cliff Shull, John Clauser, Yanhua Shih, and others. Aczel is physics professor at Bentley College in Waltham, MA.

This book relates to ASA interests in that it clearly leaves the reader wondering whether humanity is now engaging eternity through physics, where time and location lose their limitations. It raises the possibility that large-scale "impossibilities," such as the resurrected Christ passing through the locked door of the upper room might involve large-scale quantum coherence not otherwise observed yet, though suggested by entanglement physics. For physicists, this book has largely a physics-community appeal, but for nonphysicists, Aczel does a good job of clearly explaining the greatest current mystery in physics, with just enough logic and detail to give insight into the wonders, but without requiring fluency in mathematics.

Reviewed by Dennis L. Feucht, 14554 Maplewood Rd., Townville, PA 16360.

TREE OF ORIGIN by Frans B. M. de Waal, ed. Cambridge, MA: Harvard University Press, 2001. 311 pages, endnotes, bibliography, index. Paperback; $17.95. ISBN: 0674010043.

This book was an outgrowth of a session of a 1997 symposium at Cold Spring Harbor Laboratory. Six of the nine authors of articles in this book were participants in that session. Frans de Waal, the editor, is a professor of primate behavior in the psychology department of Emory University. He has written many books including *Good Natured: The Origins of Right and Wrong in Humans and Other Animals*, *Peacemaking among Primates*, and *Animal Social Complexity*. The nine articles in this book investigate various areas of human social evolution by examination of primate behavior. Among the topics covered are sexual behavior, the role of meat eating and meat-sharing, the origin of cooking, the development of language from primate grooming and cultural primatology.

Anne Pusey discusses chimpanzee social organization and reproduction. Her account of a genocidal war among the chimpanzees clearly shows a parallel between what chimps do and what humans have done in history. The main difference is that the victors appear not to rape the loser's females. Male chimps seem to be defending a feeding area rather than engaging in conquest for power's sake.

Frans de Waal in his article "Apes from Venus" compares human sexuality with that of the promiscuous bonobos who are similar to us in engaging in non-reproductive sex. These apes have sex as a means of reducing group tensions.

Karen Strier notes the great similarity among primates for philopatry, the reproductive pattern in which males stay in place and females have a higher chance of changing groups and living with their mate's group. This behavior has profound implications for the dispersal of mtDNA and implications for interpreting mitochondrial Eve, who is too often erroneously proclaimed by Christian apologists as the biblical Eve.

Craig Stanford uses chimpanzees to illuminate our love of meat. Chimps prey on the colobus monkeys and have been known to kill 800 kg in a single season. Contra the old early twentieth-century "Man the Hunter" thesis, which advocated that man with his weapons provided for the tribe, Stanford notes that possessing meat is a path to political power and sex among both chimps and primitive foraging peoples.

Of all the articles in this book, that of Richard Wrangham is the most interesting. The brain may represent 2% of our mass, but it uses 20% of our daily energy supply. Wrangham notes that the fossil record shows three things occurring around two million years ago which are consistent with cooking. The size of the hominid guts shrink, which should mean less digestion and thus less

nutrition, but the brain-size simultaneously expands, which requires much more energy, and the tree-climbing adaptations (long arms) were finally lost. Cooking meat and vegetables breaks down complex molecules and allows their nutrients to be digested much more efficiently. This in turn allows a smaller gut to deliver higher caloric content to a growing brain. And fire finally allowed the early hominids to sleep on the ground rather than in the trees. Fire deters those nasty night predators, like lions. Added to this is some archaeological support for the use and control of fire at Swartkrans, South Africa, shortly after this time.

Richard Byrne discusses animal social interactions which include behaviors we would consider sinful, such as lying to obtain food, and deceitful actions to cheat on the sexual rights of others. Chimps instinctively follow the political advice of sixteenth century Niccolo Machiavelli on how to get and hold political power. Robin Dunbar discusses how language replaced primate grooming behavior and predicts the natural human group size which is borne out by observation. Charles Snowdon discusses the origin of language from primate communications and William McGrew shows how culture, previously believed to be solely a human trait, is also possessed and transmitted to future generations by chimps.

The book is a fascinating window on the similarities between human and animal behavior which is sure to disturb many anti-evolutionary Christians. The similarity between these primate behaviors and that of our own forces one to consider our relationship, not only with our God but also with the creatures.

Reviewed by Glenn R. Morton, Manager of Subsurface Technology–North Sea, Ramsden Lodge, 103 Malcolm Rd., Peterculter, Scotland.

AFFLUENZA: The All-Consuming Epidemic by John De Graaf, David Wann and Thomas Naylor. San Francisco: Berrett-Koehler Publishers, 2002. 268 pages, index, bibliography, notes. Paperback; $16.95. ISBN: 1576751996.

It started with two PBS documentaries, the first of which aired in September 1997. Using the virus metaphor, the authors tackle a root problem in American life: too much "stuff." Driving into almost any middle class suburban neighborhood at dusk one can see the symptoms of this disease. Driveway after driveway is filled with shiny recent vintage cars. Looking in the garage, if the door is open, one can see why the cars are parked outside, for the garage is full of other things. But life is not a "stuff-eating contest," they write (p. 36). The best things in life are not things.

Toynbee once wrote that the measure of a civilization's growth was its ability to shift energy and attention from the material side to the spiritual, aesthetic, cultural, and artistic side. It is clear, write the authors, that the American civilization of the early twenty-first century is, by this measure, a miserable failure. The obsessive pursuit of material "blessings" is accompanied by rising debt, longer working hours, environmental pollution, loneliness, family conflict, stress, television shows that are 33% commercials, and spiritual hunger. The average new home today is 2300 square feet, about double what it was fifty years ago. It is also more than twice the distance to the workplace with a commute time (and cost) nearly three times higher. Mother Teresa once visited the USA to receive an honorary degree. She remarked on the material richness and spiritual poorness of the people she met. The authors argue that Americans have defined the "good life" as a "goods life." Consumption was a negative word 100 years ago; it meant to exhaust, to waste. Now we are all "consumers."

Affluenza is divided into three sections: symptoms, causes, and treatments. The three authors are, respectively, a television writer/producer, a former EPA staffer and author, and a professor emeritus (Economics) at Duke University. The book includes many illustrations by David Horsey, a Pulitzer Prize winner cartoonist.

This is not a "scholarly" book, but one aimed at Joe and Suzy Six-pack. For a sophisticated (and religious) discussion of the issues, I recommend *The Consuming Passion* (1998, edited by Rodney Clapp). That book has a deep analysis of the American drive for material wealth along with an in-depth treatment of the ethical issues involved. *Affluenza* is much more a blunt instrument as it takes the approach "we are in trouble, this is why, and this is what we must do about it."

In spite of its origins, and although much of the text appears to "dumb down" some of the details, this is a good book, one to read, and one to give—perhaps to your young offspring not yet entirely caught up in the American "rat race."

Reviewed by John Burgeson, 2295 E. Iliff Ave. #101, Denver, CO 80210.

CORPSE: Nature, Forensics and the Struggle to Pinpoint the Time of Death by Jessica Snyder Sachs. Cambridge MA: Perseus Publishing, 2001. i-x, 259 pages, index. Paperback; $15.00. ISBN: 0738207713.

The doctor met with the family in a private room to inform them that Dad had a pulmonary edema and congestive heart failure. He was eighty-nine years old and death was near. The daughter said that her dad donated his body to science. The hospital agreed to follow his wishes. Most medical schools do not need elderly cadavers. However, they seldom turn down a bequest, especially when it comes from families of benevolent financial donors.

If the university is involved in forensic research, Dad may be headed to the Body Farm. Best-selling author Patricia Cornwell came up with this name for this three-acre parcel of land near the University of Tennessee football stadium. Here Professor Bill Bass and his students place dead bodies in "the ideal habitat for replicating murder in all its popular outdoor setting….[they use] a well trampled field littered with rusting cars and surrounding…wooded hillside tangled with underbrush and laced with deer droppings … [to] chart the effects on decay rates of temperature, humidity, rainfall and soil pH. They … leave some bodies exposed, others buried at various depths, and still others locked in car trunks, stuffed in garbage bags, wrapped in blankets, naked or heavily clothed." All in the name of science.

Entomologic research and documentation evolved through the centuries. As early as the fourth Century BCE, Aristotle wrote that maggots and insects "come into being

not from union of the sexes, but from decaying earth and excrements." Bass seeks to combine and catalogue the data gathered.

Author writer Jessica Snyder Sachs examines this world of the forensic sciences in Corpse-Nature, Forensics and the Struggle to Pinpoint the Time of Death. She is the former editor of *Science Digest* but now works as a freelance science and health writer. Her work appears in *Discover*, *National Wildlife, Parenting* and *Redbook*. Sachs is a storyteller. She carefully defines her territory and terminology, then writes in a clear but unemotional manner. Sachs is a serious scientist so this text will not appeal to Baby Boomers who let funeral directors take care of body preparation or cremation of their next of kin. This material is not for the squeamish. For law enforcement personnel, it is a godsend.

The Body Farm is not Sachs' only venue. She is a science historian who documents forensic anthropology. However, the work done by these forensic entomologists and anthropologists in Knoxville fascinates her. Bass and his staff refined both the art and science of determining time of death. They often testify credibly in courts of law. Still, scientists of today stand on the shoulders of peers who preceded them and built a foundation for their work.

During World War II, research began on post-mortem identification of human remains left on the battlefield in Europe and the South Pacific. In 1939, Wilton Krogman published *Guide to the Identification of Human Skeletal Material,* the first detailed text for investigation of homicides which was readily adapted by the military. Sachs says that the "first bona fide celebrity" in forensic anthropology was Lawrence Angel who called himself *Sherlock Bones.* He raised the awareness that police officers and coroners needed training. Angel claimed that most of the medical examiners in America attended one of his seminars.

Sachs does not need the visual autopsy scenes from CSI: Crime Scene Investigation or HBO's Six Feet Under. She tells her tales without photos or illustrations because of her craft of the English language. Readers would enjoy Sach's writing if they found interesting Sherwin Nuland's book *How We Die: Reflections on Life's Final Chapter*. Sachs lacks the raw emotion of Nuland but writes equally as well. *Corpse* is both science and drama. It should appeal to anyone who loves science and celebrates the sanctity of life.

Sachs followed up with a new book, *Time of Death: The Story of Forensic Science and the Search for Death's Stopwatch* (Heinemann, 2002). Her other books include *The Encyclopedia of Inventions* (Franklin Watts, 2001) and several volumes of Grolier's *New Book of Popular Science*.

Reviewed by David Becker, writer-in-residence, Acedia Institute, Colorado Springs, CO 80906.

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ORIGINS & COSMOLOGY

WHEN WORLDS CONVERGE: What Science and Religion Tell Us about the Story of the Universe and Our Place by Clifford N. Matthews, Evelyn Tucker, and Philip Hefner, eds. Chicago: Open Court Publishing Company, 2002. 403 pages, indices. Paperback; $28.95. ISBN: 0812694511.

The Parliament of World Religions meeting in Cape Town, South Africa, in December 1999 afforded the opportunity for twenty-two scientists, theologians, historians of religion, and a science writer to discuss topics in science and religion. The Carus Family Foundation and the John Templeton Foundation supported the meeting and production of this book.

Three major sections respectively take up issues in cosmology and the evolution of life on Earth and elsewhere, religion and ecology, and the ways in which religion and science may enrich one another. The chief focus is humankind's place in the universe. Distinguished participants in this dialogue include Astronomer Royal Sir Martin Rees, cosmochemist Clifford Matthews, anatomists Matt Cartmill and Philip Tobias and physicist George F. R. Ellis.

ASA members will find useful summaries of key areas of contemporary astronomy, physics, and human biology. The middle section details the ways in which specific religious traditions (Judaism, Jainism, Native American, Buddhism, Christianity, and Confucianism) may inform and be informed by ecology. An overall premise of the book (although not subscribed to equally or in the same manner by all participants) is that science and religion need each other if world views are going to be properly robust to deal with reality as we find it. A few of the chapters by scientists, e.g., Cartmill and Rees, display either hostility or intense apathy toward organized religion. On the plus side, readers can thus get a good feel for the "majority" view among scientific elites and the daily challenges Christians in scientific circles face. Other contributors, like the devoted Quaker George Ellis, take a more appreciative view and describe a complementarity approach. Overall this collection of essays does a good job summarizing current views and puts forward much food for thought. This book could be fruitfully used with students in a seminar course or in a church-based setting followed by discussion.

Reviewed by Dennis W. Cheek, John Templeton Foundation, Five Radnor Corporate Center, Suite 100, 100 Matsonford Road, Radnor, PA 19087.

THE MESSAGE OF CREATION by David Wilkinson. Downers Grove, IL: Intervarsity Press, 2002. 279 pages, study guide. Paperback; $15.00. ISBN: 0830824057.

This book is in the Bible Themes subset of the Bible Speaks Today series. These cover topics (salvation, the cross, etc.) that run throughout Scripture. Passages relating to the theme are examined in somewhat less depth than a full-fledged commentary, with emphasis on practical applications for Christians today.

Englishman Wilkinson earned a Ph.D. in astrophysics, and is now a Methodist minister and scholar in apologetics. He uses his scientific background not only in the expected places (relating God's creative activity to science), but also frequently in his illustrations. This should suit ASA readers well.

I am pleased that this book is not limited to "the usual suspects." Of the twenty passages considered, only five are from Genesis. Wilkinson recognizes that biblical teaching on creation is much richer than "origins," so he also takes the reader through songs of praise for the Creator, descriptions of Jesus as Lord of creation, lessons to be learned from the Creator, and the ultimate fulfillment of creation. Helpful applications are drawn for each; many of these stray from the topic of creation but they are always germane to the passage.

Perhaps the book's most praiseworthy aspect is its focus on the *message* of Scripture. While the typical science-related questions are not ignored, the author relentlessly insists that our goal should be to receive the messages God is trying to convey in these passages, and that most if not all of our Creator's messages do not depend on our interpretation of exactly how and when he did the creating.

Wilkinson also insists on the centrality of God's most exalted message: Jesus Christ. In numerous places, Christ is affirmed as Lord of creation and as the center and foundation of our faith. Warnings are given against basing our faith (and our apologetics) on things other than Christ, including science and human philosophical arguments.

Readers of this journal may want to know where the author stands on issues like the age of the Earth and evolution. I must reemphasize that such issues are peripheral to the book, as Wilkinson continually focuses on the *messages* of the Bible. For example, his exposition of the ways Christians relate Genesis 1 to science is relegated to an Appendix, and even there he says: "*The writer of Genesis, inspired by the Holy Spirit, is more concerned with who God is than how he made the Universe.*" In that context, the author finds no reason to reject any of modern science, though he roundly rejects the scientism of those who see science as the only source of worthwhile knowledge. He says little about the Intelligent Design movement, but he does criticize reliance on the design argument for tending to promote a "god of the gaps" and remove Jesus Christ from his rightful place as the focus of our faith and our apologetics.

The book is written well and at an accessible level. The author has wide-ranging interests, referencing not only Calvin and C. S. Lewis but also *The Matrix* and *Hitchhiker's Guide to the Galaxy*. While British in tone and in some of its illustrations, it is still readable for those of us who think footballs are oblong and barely have heard of David Beckham. Slightly frustrating were several footnotes pointing to books that are not in print in the U.S.

The Message of Creation would be an excellent resource for ASA members, pastors, and anybody who wants to delve into what the Bible has to say about our Creator. It could also be used for group study. The church would benefit greatly if more people followed Wilkinson's approach of focusing not on alleged science/faith conflicts, but rather on the message of God's written word and the centrality of his incarnate Word.

Reviewed by Allan H. Harvey, 1575 Bradley Dr., Boulder, CO 80305.

DESIGN AND DISORDER: Perspectives from Science and Theology by Niels Henrik Gregersen and Ulf Görman, eds. London: T&T Clark, 2002. 232 pages. Paperback. ISBN: 0567088685.

This book, one volume in the series, Issues in Science and Theology, published under the auspices of the European Society for the Study of Science and Theology, contains nine essays dealing with the relationship between divine design and disorder in the universe. Gregersen is research professor in theology and science at Aarhus University, Denmark, and Görman is professor of ethics and philosophy of religion at Lund University, Sweden. Both editors contributed essays to the book

Although the contributors offer significantly diverse perspectives, all reject divine intervention in the universe subsequent to the initial creation. The editors explicitly state in their preface: "We hope to have provided a volume that shows how the issue of design can be discussed in other frameworks than that of an anti-naturalist approach to design." The essayists take a dim view of Intelligent Design and other attempts to undermine the evolutionary paradigm.

In his introduction (chap. 1), Görman briefly introduces each of the essayists, noting that they all challenge "the received view" of design in nature in one way or another.

John Barrow's essay, "How Chaos Coexists with Order" (chap. 2), reviews a variety of current physical concepts and theories offered as explanations of the natural order, only to conclude that "the structure of the world around us," in particular the organized complexity we see in nature, "cannot be explained by the laws of nature alone." He suggests that organized complexity in nature "relies on that other complexity called 'intelligence' to act as a catalyst and midwife for its creation."

John Hedley Brooke revisits Darwin on order and design in chap. 3. Brooke's essay consists of a fairly long account of Darwin's own intellectual odyssey followed by a superficial critique of Behe's arguments in *Darwin's Black Box*.

Chapter 4, "Beyond the Balance: Theology in a Self-Organizing World," is Gregersen's own contribution to the book. He affirms at the outset that "we need more than variation and selection to explain the intricate world of biology," proposing that "the neo-Darwinian Synthesis needs to be supplemented (though not replaced) by theories of chemical pathways and self-organization."

I found John Puddefoot's essay, "Landscapes of Human Discourse" (chap. 5), abstruse and confusing. Even those who understand it will have to agree that it does not grapple with the question of design and disorder in the universe.

Isabelle Stengers, well known for her work with Ilya Prigogine, is the only contributor who explicitly declines to describe herself as a Christian. Paradoxically, her essay (chap. 6) acknowledges that "biblical creationists" have valid criticisms of materialistic monists like Dawkins. While not offering her own solution to the question of design in nature, she aligns herself generally with Whitehead's approach to religion and science.

Christoph Theobold, SJ, offers a Thomistic perspective in "On Finality in Creation Theology" (chap. 7). He has

reservations regarding the anthropic principle, apparently because he believes it leads to rejection of an Aristotelian/Thomistic view of creation (and therefore provides a flimsy foundation for faith.)

In "Design in the Universe and the Logos of Creation" (chap. 8), Alexei Nesteruk brings an Eastern Orthodox perspective to the question of design in nature. His essay goes back to the Greek Fathers (Athanasius, John Philoponus, Maximus the Confessor) to develop a theory of the relationship between the Christ, the Logos of God, and the rational principles giving form and order to the world (the *logoi* of creation).

Willem Drees (chap. 9) concentrates on disorder rather than design. He summarizes his essay in two theses:

> (1) Disorder in nature calls into question a wide variety of projects in "science and theology," as too many projects are based on mistaken assumptions of harmony.
>
> (2) Disorder in nature is a reality which can be considered as if it were designed to call humans to responsibility, to serve God and each other with all our heart and soul as well as with all our power and mind.

The essays in this book have something for every Christian interested in the design and disorder in nature. The various authors bring a European perspective not commonly encountered in writings on this side of the pond. I recommend the book highly.

Reviewed by Robert Rogland, Science Teacher, Covenant High School, Tacoma, WA 98465.

SCIENCE AND GOD: Our Amazing Physical and Economic Universe—Accidental or God Created? by M. L. & John G. Greenhut. Lanham, MD: University Press of America, 2002. 170 pages. Paperback. ISBN: 076182250X.

Numerous physical scientists have argued for the anthropic principle—that a finely tuned universe by and from the Big Bang manifests intelligent design in structure, intelligent purpose in function, and creative power in origin. Here two, very well-published economists try to supplement those arguments with a similar argument from what they call the "economic universe."

The authors are serious students (certainly not teachers) of natural science but clearly not of philosophy, as their survey of its history readily reveals. They appeal to many cosmological arguments but doubt that any, or all, can prove God's existence. They seem certain, however, that "the contention that randomness could produce order over [enough] time, is in our view, a *per se* rejection of science." Such surely seems logical, but logic fails vis-a-vis God apparently. Science can only be rhetorical persuasion regarding its origin and goal, the Alpha and Omega.

They find both the universe and the university (of human knowledge) so amazing that their very possibility is unbelievable. They mean—without using the term—stupefying, awe-full, wondrous, beautiful (harmony in clarity). Not just multiple universes, but even nuclear realities seem more unbelievable than a Divine Creator. But wisdom does not necessarily provide a Grand Unified Theory.

Unfortunately, their book is a jumble. Only 90 of 170 pages present the arguments. The rest are made up of a preface, a foreword, two postscripts, two postludes, and eight appendices. They claim their audience will be, and is meant to be, scientific lay people, but their arguments are usually expressed in terms (and letters) of higher mathematics.

There are some basic contradictions. "There had to exist *eternal* (pre-Big Bang) matter … in [a] neutral state." Yet they end the book with eight arguments that the universe is only 5,000 years old. All of the evidences for its vast time, they suggest, are an intelligent-designed illusion, a "duck-soup smoke screen by a Loving God." In fact, "if one uses Riemannian geometry instead of Euclidean geometry, the date of the Big Bang would be cut down by billions and billions and millions and millions of years."

There is significant silliness at times, as in their "The Grand Design in our Oligopolistic-Oligopsonistic Economy" which apparently designates any economy—anywhere, anytime, of any size. And there is outright madness in their arguments, first, that an(y) economy is a finely tuned equilibrium of an infinite number of relations and interconnecting occurrences, and second, it therefore must be a God-created intelligent design that complements the IDs in the physical universe. Their interest in presenting economic realities in forms of higher mathematics would surely give Alan Greenspan a stomachache. As vice president of mining, drilling, and investing companies and as a registered financial planner, if they had ever showed up as the business consultants (they claim to be), I would have called the goon squad.

That is the most amazing thing about this book. The authors, open to all knowledge, wanting to integrate it all, searching for a GUT, acknowledged experts in economics, do their worst work and show their greatest weakness precisely in discussing economics. There are better books by far.

Reviewed by Richard J. Rolwing, 7651 Burkey Ave., Reynoldsburg, OH 43068-2658.

CREATION by Hans Schwarz. Grand Rapids, MI: Eerdmans Publishing Company, 2002. 254 pages, indices. Paperback; $29.00. ISBN: 0802860664.

Recent years have witnessed a significant industry development in the area of engagement between modern science and religion/theology. Much of the writing in this arena frequently suffers from a lack of sophistication and understanding by the theologian or religious studies scholar of the science in question. This is often coupled with a naïve or even dismissive approach to theology or respective world religions shown by a (frequently renowned) scientist. Fortunately, as with any maturing field, this chasm is narrowing as more and more individuals develop some reasonable or even profound competence in what used to be a forbidden or foreboding intellectual terrain, some with singular and positive effect (e.g., John Polkinghorne, George Ellis, Philip Clayton, John Haught, Robert Russell, Alister McGrath, Thomas Torrance, Howard Van Till). Hans Schwarz can certainly join this elite company as an active German Lutheran theologian who comprehends signifi-

cant dimensions of the modern scientific enterprise. Some of his prior theological work probes issues in Christology and eschatology. He now complements these contributions by considering creation, both as a doctrine and from the standpoint of what insights modern science might provide on this ancient and venerable theological topic.

Since the author has held appointments in both the United States (Lutheran Theological Southern Seminary in Columbia, SC) and Germany (University of Regensburg), the book displays wide knowledge of people, movements, and thoughts on both sides of the Atlantic in both Anglo and non-Anglo (admittedly mainly German) circles. Many key ancient and modern theologians who have written on either science or creation are discussed including Augustine, Barth, Bonhoeffer, Luther, Moltmann, and Pannenberg, with a heavy emphasis on the Germanic theological tradition. Scientists and organizations active in contemporary science and religion dialogue are also prominently on display (e.g., ASA, Barbour, CTNS, Davies, ESSSAT, John Templeton Foundation, Peacocke, Polkinghorne, and von Weizsäcker). Throughout, the book displays an appreciation of the complementarity of both science and theology to understanding this important Christian doctrine but avoids the non-overlapping majesterial argument advanced by the late Stephen J. Gould in *Rock of Ages*.

The author works hard to show how science has often been a bastion and staging ground for atheism or agnosticism and an uneasy place for many Christians, the kind of reality that contemporary science actually reveals, the rapprochement that occurred in the latter part of the twentieth century between science and Christian faith, and a nuanced understanding of the doctrine of creation in light of these many and varied developments. No mention is made in the book of either young earth creationism or the intelligent design movement—possibly because these movements have only found large followings among evangelical Christians and churches in the United States. Some important recent theological work by Anglo scholars on creation is not mentioned (e.g., Colin Gunton, Alister McGrath, Keith Ward) but this oversight should not hinder anyone's acquisition of this important treatise.

Reviewed by Dennis W. Cheek, Vice President for Venture Philanthropy Innovation, John Templeton Foundation, Radnor, PA 19087.

HOW LIFE BEGAN: Answers to My Evolutionist Friends by Thomas F. Heinze. Ontario, CA: Chick Publications, 2002. 158 pages, index. Paperback; $8.50. ISBN: 0758904797.

The book presents a rebuke of atheistic chemical evolution in favor of an unspecified but non-evolutionary theistic process. The five chapters address topics such as the self-assembly of proteins and other biopolymers, descriptions of chemical processes in cell biology, and intelligent design. The final chapter offers an evangelical Christian message of a creator God who is interested in the reader. There are no illustrations or diagrams. The author cites many reputable journals, and some less reputable journals, as well as many mainstream biology and geology textbooks. Much of the book addresses the historical development of chemical evolution theory with particular attention being paid to changes in the theory as they have occurred over the past several decades.

It is the author's conviction that current evolutionary theory cannot explain the chemical formation of proteins, enzymes, RNA, DNA, or any other biochemical molecule. Though much of the author's discussion of the historical development of the theories of chemical evolution is informative and well constructed, his conclusions take on the sensationalistic and ridiculing tones of the typical young earth proponent. Heinze speaks of hidden scientific secrets that prove the impossibility of chemical evolution and implies the existence of scientific conspiracies. Heinze also correlates the teaching of evolution with moral degradation in American society. Though Heinze makes use of many of the rhetorical techniques and social logic of the young earth advocates, he does not overtly declare himself to be a young earth proponent. Rather, Heinze aligns himself with the intelligent design movement and cites Behe and Dembski quite heavily.

The strength of this book lies in its summary of the evolution in theories of chemical evolution. Heinze explains many aspects of science, such as chirality, in an easy to read, lively style that the most readers will appreciate. Heinze is fairer to science than most young earth antievolutionists and deserves some credit for his efforts in this regard. Although Heinze presents the questions and problems of chemical evolution in a fairly honest approach, he does not carry these desirable qualities through into his interpretations and conclusions. The book's strength, in its easy to read writing style, evolves into a weakness as sensationalism and logical fallacies become predominant in Heinze's philosophical, social, and theological evaluations. For example, Heinze fixes the cause of many current social problems on the teaching and acceptance of biological evolution. Heinze says, "Darwinism is the grinch that stole hope. Guns in school are just a symptom." Such statements may inspire the choir, but they do nothing to convince the wary reader who questions the legitimacy of such logic.

This book is available on line at no cost. For those interested in Heinze's summation of the historical development of chemical evolution theory, I would suggest that they go there. For serious readers interested in an integrated approach to Christian faith and origin science, I would suggest looking elsewhere.

Reviewed by Gary De Boer, associate professor of chemistry at LeTourneau University, Longview, TX 75607-7001.

PHILOSOPHY & THEOLOGY

PANDEMONIUM TREMENDUM: Chaos and Mystery in the Life of God by James M. Huchingson. Cleveland, OH: The Pilgrim Press, 2001. x + 230 pages. Paperback; $17.00. ISBN: 0829814191.

Huchingson's goal in writing this book is summarized in the following thoughts:

> The notion of complexity, the common object of study in several … new sciences, is itself suggestive of a whole new host of insights and concepts around which to build a new cultural paradigm, a cosmology

> or world view founded in notions of interaction, interdependence, and diversity. If history repeats itself, this cosmology will likely lead to a new cycle of theological reflection concerning the nature of God and the creation as reinterpreted under the rubric of complexity (p. 39).

To get to his "new cultural paradigm," Huchingson begins by telling us that we base our theology, in part, on concepts we already have. The computer is so all-pervasive in our society that we are going to remodel our theology from our knowledge of computers. In particular, he believes that we should, and will, use the concepts of information theory to help shape the theology of the twenty-first century. He is familiar with theology, being a professor of religious studies at Florida International University. Although scholarly, his book is readable. As a non-theologian, I believe that he is right. Our familiarity with computer concepts will inform our theology, either as we deliberately set out to incorporate such concepts, or just because such concepts are part of the lens with which we view the world.

He spends three chapters setting up his theological background. A fourth is "A Primer of Communication and Systems Theory." I doubt if most computer users, including professional theologians, have much notion what systems theory, or information theory, is all about. With this lack, I doubt that their theology will reflect these areas in any satisfactory form. I was hoping that Huchingson was going to remedy all of this. It seems likely that he could have. He knows his theology, and seems to know enough about systems theory and information theory to be helpful in explaining them to others. Probably anyone reading this who knows either of these areas fairly well can immediately think of some connection to theology that would be helpful in thinking about God, or in doing "God-talk," as Huchingson literally translates "theology." For example, if prayer is communication, then information theory may be helpful in thinking about prayer.

However, this is not where Huchingson wants to go. In chapter five, he discusses the idea of original waste, the formless void from which God created things. This is the *Pandemonium Tremendum* of his title. Yes, there may be a relationship to information theory. But then, in chapter six, he loses me, or, rather, he tries to lead me onto a path which, if I understand him, I do not think I should follow. I quote Huchingson: "The *Pandemonium Tremendum* is this source of abundance without which God could not be God" (p. 116). "… the *Pandemonium Tremendum* is the reason for God's absolute sovereignty and the limitless source of variety for the creation" (p. 137).

Unless I misunderstand the author completely, he is claiming a much greater role for chaos than either Scripture or common sense allow, coming close to making the original chaos more important than the omniscient, omnipotent Creator. He seems to recognize this, to some extent. In his final chapter, "Evaluating the Model," he says:

> We have identified several weaknesses in this system either as inconsistencies or lingering, inadequately answered questions. One concerns the ontological subordination of God to the *Pandemonium Tremendum*. The answer given to the cosmological question—why God exists—has the deity arising from the chaos as a spontaneous posit, the primordial decision that determines God … How is it possible for the primordial chaos, over an eternity of turbulent mixing, to give rise to an enduring entity or ordered state capable of fending off the destructive scouring of the chaos? (pp. 219–20)

How, indeed?

Huchingson has much to say that is good. His analysis of the original language of Scripture and his willingness to try to bring insights from science to bear on theology are among the things about this book that are to be commended. For myself, I regret that he seems to have used these tools to undermine his view of God's power.

Reviewed by Martin LaBar, Professor of Science, Southern Wesleyan University Central, SC 29630.

HEARING THINGS: The Mystic's Ear and the Voices of Reason by Leigh Eric Schmidt. Cambridge, MA: Harvard University Press, 2002. xvi + 318 pages. Notes, index. Paperback; $17.95. ISBN: 0674009983.

"*Speak Lord, for thy servant heareth*" (1 Sam. 3:10). Christians hold diverse understandings of the way they hear the voice of God. In this work, Schmidt, Princeton Professor of Religion, tackles the question of how the Enlightenment influenced and clarified the "devotional ordinariness of hearing voices, the everyday reverberation of spoken scriptures, and the expectation of conversational intimacy with Jesus (as well as angels and demons) common in pietistic Christian circles" (p. vii).

Schmidt wants to discover what happened to Christian practices in the light of various Enlightenment ways of thinking and the tactics of reformers of "enthusiastic" popular devotion. Not surprisingly the Enlightenment effort to debunk religious voices saw instead "more prophets, tongues, and oracles … the modern predicament actually became as much one of God's loquacity as God's hush" (p. 11). As evangelicals (especially the early Methodists) came to absorb the thinking of Scottish Common-Sense Philosophy and the new science, the old conflict between the demystifyers and Christian devotionalism (the notion that God speaks and hears) acquired a modern look.

Demystification (separation of the real from the false) was deemed important to make sensory impressions reliable—the passions, credulity, ecstasy, and Christian proclamation possessed an ambiguous, unstable power which made its careful management especially urgent. Schmidt concludes: "However intent deistic skeptics were in their practices of demystification, the path of the Enlightenment proved treacherous, littered with blockages, switchbacks, and outright reversals" (p. 8).

Chapter 1 debunks two received views: (1) that the Enlightenment obsession with vision, optics, and literacy displaced *traditional* aural and oral cultures, and (2) that the modern loss of hearing reflects the loss of divine presence in the emergence of a *secular worldview*. Schmidt deftly identifies the weakness of these views in demonstrating that they were more than matched by a new understanding of the ear and new expressions of what Augustine earlier described as "the light in my inner self,

when my soul is bathed in light that is not bound by space; when it listens to sound that never dies away" (p. 36). Prayer remains a practice which involves a speaker-listener relationship conditioned by the Holy Spirit.

Chapter 2 describes a variety of individuals who struggled with the call to preach the Gospel in austere circumstances. Schmidt finds that the centrality of preaching in Christian worship was complemented by a "spiritual hearing" that prompted an immediate response as in the call to be a preacher. Quakers, Baptists, and itinerant non-denomination preachers emphasized this immediate inner call. Countering this approach was a view that a congregation called the minister in a careful public constitutional manner which barred "restless and turbulent persons" (John Calvin, p. 42). The Puritans stressed formal preparation and trial before ordination.

Chapters three through five consider (1) oracles (clairvoyants, mediums, fortunetellers, tongue-speakers) whom the Enlightenment particularly enjoyed debunking; (2) ventriloquists, whose art moved from demonic possession to a rationalistic critique of religion to a popular entertainment; and (3) prophets, including trance-speakers and mediums of all sorts, who proliferated through the nineteenth and twentieth century.

The telling of this tale ranges from descriptions of tongue-speaking Scottish Presbyterians, Swedenborg's Church of the New Jerusalem, and the sacramental powers of the telephone to camp-meeting enthusiasm, the magic lantern and the speaking trumpet.

Schmidt concludes that much of twentieth-century American religion is still taken up with these issues—the persistence of Enlightenment models of pathologizing religious voices, the culture of showmanship's absorption of religion's oracular power, and the popular surfeit of Pentecostal tongues and channeled spirits. He suggests, however, that the modern displacement of prayer for "quality" interpersonal relationships and the absorption of religion into discourses on ecology and therapy offers a religious absence that would be unthinkable. Amen!

While beautifully crafted as an academic production *Hearing Things* has limited value for the evangelical reader as it does not offer *a theological base* for voices—a deliberate (p. 33), but unfortunate choice.

Reviewed by J. W. Haas, Jr., Emeritus Professor of Chemistry, Gordon College, Wenham, MA 01984.

WHAT IS RELIGION? by Robert Crawford. Independence, KY: Routledge, 2002. 234 pages. Paperback; $20.95. ISBN: 0415226716.

In Robert Crawford's *What Is Religion?* today's most popular religions (Judaism, Christianity, Islam, Hinduism, Buddhism) are described in relationship to their rituals, scriptures, women, liberation, divisions, and behavior. Chapters of interest to *PSCF* readers include "Confessing a Murder," a presentation of Darwin's theory; "Is the World Designed?" a discussion of whether the earth is designed or accidental; and "What Are We?" an exploration of human nature. In his concluding chapters, Crawford contemplates religion's definition and future.

Crawford, professor of religion with the Open University, has taught in four foreign countries. He has written six other books including his recently published *Can We Ever Kill?* His *The God/Man/World Triangle* was nominated for a John Templeton Award for theology and the natural sciences. After many years of teaching the subject, Crawford wrote *What Is Religion?*

This book has several attractive features. It is reasonably priced, succinct, up-to-date, and evenhanded in its approach. Although it has seventeen chapters, they are compressed into 234 pages including endnotes and an index. It would be an appropriate selection for a college course in religion, a church study group, a laypersons' book club, or someone interested in a brief summary of what religion is and where it is likely headed.

Reviewed by Richard Ruble, John Brown University, Siloam Springs, AR 72761.

Social Science

SPIRITUAL, BUT NOT RELIGIOUS: Understanding Unchurched America by Robert C. Fuller. New York: Oxford University Press, 2001. 212 pages. Hardcover; $25.00. ISBN: 0195146808.

Although over 90% of all Americans believe in God or a Higher Power, only 62% are connected with organized religion. About one-seventh are "secular humanists" who reject all supernatural understandings of the world, but about one in five are unaffiliated, yet "spiritual, but not religious." Impatient and disgusted with institutional religion or feeling harmed by it, their individualized spirituality picks and chooses beliefs and practices from a wide range of alternative religious philosophies. Believing each person has the right to direct one's own developmental life journey, they reject churchianity and explore that which lies beyond material reality to affirm their inner self potential.

In this fascinating book, Fuller, professor of religious studies at Bradford University and the author of *Naming the Antichrist* and *Alternative Medicine in American Religious Life*, surveys the history of such people in America, summarizes their alternative world views, and describes the "new eclecticism" of their psychological spirituality. The words *religion* and *spiritual* formally are synonyms that connote belief in a Higher Power, imply a desire to connect with it, and indicate rituals and behaviors fostering that connection, but most Americans now associate the word *spiritual* with the private realm of thought and personal experience, while *religion* is relegated to the public realm of membership and participation in religious institutions.

Fuller reminds us that about 85% of colonial Americans were not church members. The majority engaged in various magical and occult practices, including astrology, fortune-telling, divination, witchcraft, and healing practices (amulets, charms, potions, "supernatural" herbs, magic, etc.). "What is certain is that, from the outset, Americans have had a persistent interest in religious ideas that fall well outside the parameters of Bible-centered theology" (p. 15). Deism, Enlightenment rationality, Freemasonry,

Universalism, Swedenborgian metaphysics, Transcendentalism, mesmerism, spiritualism, New Thought, Hermetic science, and Theosophy all made their mark before or during the nineteenth century.

The thirst for the paranormal has found its way into trance channeling, angelology, near-death experiences, *The Celestine Prophecy,* the human potential movement, *A Course in Miracles*, fascination with the mysticism of Eastern religions, feminist and ecological spiritualities, neo-paganism, witchcraft, New Age spirituality, and other spiritual phenomena. Unease with separation of the cure of souls from the cure of bodies has contributed to the popularity of alternative medicines, healing practices, and therapies that draw upon occult and metaphysical traditions. Psychology, often used to define mature faith, has become a secular successor to religion. Even churches, trying to satisfy the popular quest for self-actualization, however labeled, have made "spiritual psychology" their focus of attention.

In his wide-sweeping analysis with its index and twenty-five pages of reference notes, Fuller convincingly demonstrates that the new "seeker spirituality," in contrast to the "habitation spirituality" of active membership in a particular religious heritage, is not new. He capably suggests that the cultural influence of the "spiritual, but not religious" philosophy, bolstered by both scientific and pseudo-scientific developments, is gradually gaining dominance over institutional religion in American society. The huge national bookstore chains, with their large sections on the Bible, Christianity, and Judaica but even larger sections devoted to Eastern religions, New Age spirituality, and self-help philosophies, are emerging as "the virtual synagogues of spiritual instruction" that help people weave together their personalized spiritualities while "eschewing the one-size-fits-all faith of established churches" (p. 155). Analysis of the extent to which this trend is reshaping the personal faith of church members and possibly serving as a major impetus in the changes, growth, and decline of Christian congregations and denominations could be the next significant scholarly and scientific research task in the study of religion.

Reviewed by David O. Moberg, Sociology Professor Emeritus, Marquette University, 7120 W. Dove Ct., Milwaukee, WI 53223.

THE VARIETIES OF RELIGIOUS EXPERIENCE: A Study in Human Nature by William James. 1902; centenary ed., Independence, KY: Routledge, 2002. 415 pages. Hardcover; $18.95. ISBN: 0415278090.

This book is a classic. That is why a centenary edition has been issued. In 1902 when it was first published, *The Nation* said this book was "epoch-making" and predicted that it would become a classic, and so it has. In *The Varieties of Religious Experience*, William James shows why he is one of the most lucid, charming, insightful and brilliant writers America has ever produced. He is called "America's foremost psychologist" by psychology's renowned historian Edwin Boring. Gertrude Stein captured the admiration subsequent generations have held for William James when she said, "Is life worth living: Yes, a thousand times yes when the world holds such spirits as Professor James."

Ideas contained in *The Varieties of Religious Experience* were first delivered by James in Edinburgh as the Gifford Lectures and later transcribed into this book. In it James described religious experience in a systematic, colorful, and empirical way. He dealt with a variety of religious topics including conversion, saintliness, mysticism, near-death experiences, and polytheism. He believed religious experience was worthy of scholarly study, and he devoted a substantial part of his time and writings to it. James defended the right to believe in the existence of God because it makes people "better off," although he thought there was no scientific evidence for God's existence.

James' emphasis on the psychological study of religion established a legitimate field of study in contemporary psychology. For people interested in learning about the psychology of religion, the first book they should read is *The Varieties of Religious Experience*. Far from being erudite and pedantic, it is immensely readable and highly insightful. While evangelicals may discover points of debate, they may also come upon new ways of describing humanity's propensity for religious experience.

Reviewed by Richard Ruble, John Brown University, Siloam Springs, AR 72761.

THE SPIRITUAL DIMENSION OF AGEING by Elizabeth MacKinlay. London, England, and Philadelphia: Jessica Kingsley Publishers, 2001. 272 pages. Paperback; $22.95. ISBN: 1843100088.

Stimulated by increasing awareness of the spiritual dimension in health, MacKinlay examines its relationships with religion, faith, and spirituality, especially as people grow older. This book's topics include meaning in life, images of God, the spiritual journey, perceptions of self-sufficiency and vulnerability, wisdom for the move from provisional to final meanings, fear and despair, hope, humor and laughter, horizontal and vertical social relationships, isolation, preparation for aging, and many others. The author, a senior lecturer at the School of Nursing in the University of Canberra, Australia, is both an experienced nurse and an ordained Anglican priest. She has been a university chaplain and is the inaugural director of the Centre for Ageing and Pastoral Studies.

MacKinlay's findings about spirituality from in-depth interviews on meaning in life with twenty-four diverse volunteers aged 65-plus are interwoven with information and perspectives drawn from a wide range of other gerontological resources to produce a coherent account of the spiritual dimension of aging. She interprets spiritual wellness as a movement toward wholeness that can continue throughout the entire lifespan. Rather than a state of being, it is a process that is as basic to healthy aging as physical and psychological wellness.

Although this study is the product of research "down under," its research findings and conclusions are applicable to people worldwide. In many ways it complements the book on *Aging and Spirituality* (Haworth Press, 2001) that I recently co-authored and edited. It is easy to use as a resource because the 135 sources it cites are alphabetically listed in References, there is both a Subject and a Name

Index, and each of its fifteen chapters ends with a brief summary.

I recommend this book for both educational study and personal reading. Although written for the general market, it does not reduce spirituality merely to feelings or a set of mythological beliefs, nor does it assume all religions are equivalent, even though it has only passing mention of non-Christian religions. It covers the major topics that ought to be infused into the awareness of all who work with aging people, whether in volunteer services or in professions like nursing, pastoral care, or social work, and it often mentions topics needing additional investigation. "The findings of research into the spiritual dimension … can only be of value if … professionals are in touch with their own spirituality" (p. 239).

Reviewed by David O. Moberg, Sociology Professor Emeritus, Marquette University, 7120 W. Dove Ct., Milwaukee, WI 53223.

THE ECONOMIC LAWS OF SCIENTIFIC RESEARCH by Terence Kealey. New York: Palgrave Macmillan, 1997. 396 pages. Paperback; $26.95. ISBN: 0312173067.

Government funding of scientific research is a massive waste of money. Technological progress is not attributable to science. Privately funded and hobby scientists have been the most productive. Sound preposterous? Kealey is a Cambridge University biochemist who challenges widespread myths about the relationships of science, technology, and economics.

He begins with the "linear model" of Francis Bacon, that government-funded science drives technology, by showing historically that the technological advancements of skilled, uneducated workers in England drove the technical advancement that led to scientific investigation. Basic science today contributes about 10% to new technology; 90% is driven by existing technology, just as old science largely drives new science.

Kealey compares the history of development of science and technology in Britain and France. The essential difference between the two countries was that the British government adopted *laissez faire* policies while the government of France ran every aspect of French society. Yet Britain grew rich and France remained poor. Technical progress relied upon the inventiveness of local engineers who could afford to do private development due to low taxes in Britain.

British science was funded largely by hobbyists, industry, and private endowments of university science. Hobby scientists included Cavendish, Darwin, and Royal Society president William Parsons. The increasing wealth of Britain enabled thousands to passionately take up science as a hobby. It flourished until 1914, when *laissez-faire* Britain ended. As Kealey observes:

> The loss of the hobby scientists has been unfortunate because the hobby scientists tended to be spectacularly good. They were good because they tended to do original science. Professional scientists tend to play it safe; they need to succeed, which tempts them into doing experiments that are certain to produce results. Similarly, grant-giving bodies which are accountable to government try only to give money for experiments that are likely to work. They represent the development of established science rather than the creation of the new. But the hobby scientist is unaccountable. He can follow the will-o'-the-wisp.

Economic charts and tables appear in Kealey's account of economic history since the 1870s and the trend is clear: "In the long term, there is only one factor that determines the rate of economic growth: productivity." And innovation is "a crucial contributor to improvements in productivity." Government investment is inadequate; the USSR invested to excess yet did not grow. In 1960s America, after twenty years of huge government investment in science, officials started to doubt the Baconian model. The defense department commissioned a vast study, *Project Hindsight*. "Indeed, the evidence suggested that, if anything, it was the unexpected discoveries made by technologists or engineers that boosted pure science, rather than the other way around."

Running through Kealey's book are the negative effects of war on science. "During war, a government must intervene to regulate all aspects of a nation's life, and that experience of government control legitimizes *dirigisme*, central planning and dependence on the State."

Kealey then turns from history to the logic of why the Baconian model fails. "Governments are dreadful judges of commercial opportunities." He gives recent examples.

In the chapter, "The Real Economics of Research," Kealey delivers on the book's title, and gives the three laws of funding for civil R&D, along with copious data in support.

In the last chapters of this content-intensive book, Kealey argues that both British and American research and development are not in decline, and that one must be careful not to confuse rates with absolute amounts for developed countries.

Finally, he widens the scope to philosophy of science, in which he denounces the influence of Rousseau's anti-science and pro-statist views on Hegel, Robespierre, Marx, Hitler, Lenin, Mao, Mussolini and Matthew Arnold.

This book is recommended reading or as a reference on the relationship of sci/tech to the larger world of economics, politics, and philosophical concerns.

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GOING PUBLIC: Christian Responsibility in a Divided America by Lawrence E. Adams. Grand Rapids, MI: Brazos Press, 2002. 192 pages. Paperback; $18.99. ISBN: 1587430304.

Are the people of the United States of America politically and morally polarized? Adams, associated with the University of Virginia, assumes the answer is obviously "yes." He addresses these questions to the conservative Christian community: what is the role of the church in the public square, how can the church express this role, and is it necessary or possible for society to have a common ethic? His goal is to encourage Christians to understand the American culture so as to engage public life responsibly.

The book was done as part of a research fellowship under the auspices of the University's Post-Modernity Project.

There is much to admire about this book; the author writes clearly and with passion. The polarization argument is well developed, although much is taken for granted. For instance, he posits certain moral positions as obviously "Christian" and other positions as obviously "not Christian." But this is a consequence of his writing for a designated target audience. He expresses his personal unhappiness with American society's opting for "life, liberty and the pursuit of happiness" and argues for a state which ought to be one "existing primarily for the glory of God, and to see his will be done on earth as it is in heaven" (p. 63).

This statement made me question whether the author would speak at all of religious pluralism. Somewhat to my surprise, he did not. Indeed, the survey data he cites speaks of America as being made of just five religious groups: evangelical and mainline Protestants, orthodox and progressive Catholics, and secularists. In the world of Adams, it appears, Muslims, Mormons, Jews, Unitarians, American Indians, and a host of other minority groups, do not exist. In my view, this oversight weakens many of the author's arguments.

The timeliness of Adams' book makes it worth reading, but perhaps not keeping. Geoffrey Layman's recent book, *The Great Divide*, does a better job of addressing the issues, if not with the insights that came from the election of 2000. And the book by Robert Fowler, *Religion and Politics in America*, is another recommended read on this topic. I treasure both of these books in my own library.

Reviewed by John Burgeson, 2295 E. Iliff Ave. #101, Denver, CO 80210.

THE AMERICAN SPIRITUAL CULTURE: And the Invention of Jazz, Football, and the Movies by William Dean. New York: Continuum International Publishing Group, Inc., 2002. 240 pages, index, notes. Hardcover; $24.95. ISBN: 0826414400.

Dean is professor of constructive theology at the Iliff School of Theology and the author of five previous books, one of which won an award for excellence from the American Academy of Religion in 1995. In this provocative volume, he analyses the spiritual culture of the United States. American citizens are religious, he argues, not only in the obvious ways like attending religious services but also in other ways that reflect their common heritage as a culturally displaced people.

In the introduction, Dean writes: "I describe an America that harbors its own distinctive spiritual culture. This culture has guided America for one simple reason: Americans have believed that it speaks for a truth, even a reality, greater than America" (p. 9). The book is one person's answers to discovering both what that spiritual culture is all about and what the grounds are that support it. The book consists of two separate parts and a somewhat controversial conclusion.

In part 1, "God the Opaque," Dean discusses reductionism, which he labels "America's Reigning Religious Skepticism" (p. 34). He refutes the reductionists' (Durkheim, Freud, Segal, Guthrie and others) claim that the divine grounding of America's culture has disappeared, that the spiritual culture is based on nothing but itself, and that the claims of religion are "like shouts in an empty canyon" (p. 34). This was, for me, the book's high point. He then lays out the task for the religious critic, one which begins primarily by not adopting the world views of nonreligious inquiries. Subsequent chapters describe the American character as being that of a pragmatic "displaced person." There is a commentary on William James who had explored religious experiences in others without having one of his own. In James' final months of life, he broke through the "irony of atheism" into theistic richness. Dean returns to this theme at the end of the book.

In part 2, "America the Visible," Dean describes the inventions of jazz, football, and the movies as particular forms of the American spiritual culture. He discusses what each of these activities suggest, both about the American culture and about the Ultimate Reality that is active in it. "In their devotion, jazz fans show their appreciation for, among other things, improvisation; football fans suggest their ambivalent negotiation with violence; and movie fans manifest their desire for self-creation through fantasy. In each case, the enthusiasts telegraph their view of what is most (religiously) significant in their world" (p. 114). I read this part of the book several times, each time gleaning more insight into its thesis.

At the book's end, Dean offers a "Conclusion," a four-page brief titled "The Irony of Atheism." Out of secularization, he argues, religious experience often arises. Dean concludes, powerfully, by citing from Thornton Wilder's play, "The Skin of Our Teeth," an ironic look at the history of humankind. In the last speech of this play, the character Sabina speaks directly to the audience: "This is where you came in. We have to go on for ages and ages yet. You go home. The end of this play isn't written yet."

This book is an important contribution to understanding the peculiar American character. Robert Bellah, in a back jacket recommendation, sees it as both "intensely readable" and targeted to a "large audience of scholars and lay people alike." I would not recommend it, however, to less than a college student, and then only one with training in both the sciences and humanities. With that caveat, I recommend the book highly.

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Letters

An Author Responds to a Negative Book Review

I would like to respond to a review of my book, *Evolution and the Problem of Natural Evil*, which was published in the September 2002 issue of *PSCF* (p. 204). The reviewer, John Burgeson, of Durango, Colorado, clearly did not take the time to work through and understand the various protheistic arguments that are put forth in this book. He criti-