ENGINEERING

PRISONERS OF HOPE: How Engineers and Others Get Lift for Innovating by Lanny Vincent. Bloomington, IN: WestBow Press, 2011. 252 pages. Paperback; $19.95. ISBN: 9781449728267.

Something inexplicable keeps happening to me: friends and colleagues bring a steady stream of significant books to my attention, usually at *kairos* times when the subject matter is germane to something I have been grappling with. In this case, I was asked by Arie Leegwater to review the book, *Prisoners of Hope*, by Lanny Vincent. My current grapple is a three-year effort to bring a technology start-up into being. The background is my thirty-year career in engineering R&D and education. I wondered how Vincent's account would stack up with my experience.

Many books have been written on innovation—what it is or is not, how the process works, whether it can be taught, and how to stimulate it. Vincent was an ordained Presbyterian minister before he went into industry, so we might well expect a cross-disciplinary (or even cross-realm) perspective. Building an analysis of innovation from scripture, however, makes *Prisoners of Hope* unique—and probably controversial. Innovators become *prisoners of hope* (Zech. 9:12) when their innovations are first introduced to the customer. Whether an invention, a new solution, a better value, or a more elegant design, the innovation "is an offer, sacrificed on the altar of customers' opinions" (p. 184).

Innovators differ from inventors, Vincent explains, in that innovators are more oriented toward business considerations, while inventors are more focused on technical issues (p. 132). Innovators must appreciate the innovation's economic context and conditions, whereas inventors must appreciate the invention's *Sitz im Leben*, the surrounding physical and technical ecosystem. Thus innovators may see potential where even the inventor may not (p. 159). Successful innovators are often "T-types": people with deep expertise in one or more areas of a specialty and at the same time have experience with a breadth of connections in other areas (p. 13).

Vincent asserts that the desire for fame, fortune, or career advancement seldom proves sufficient for successful innovation. Instead the biblical qualities of faith, hope, love, trust, humility, gratitude, awe and wonder, perseverance, and forgiveness are required in full measure. Each of these qualities is introduced and illustrated with scripture passages. The youthful David is described as an experienced shepherd who had repeatedly given himself permission to try and to fail. The account of David and Goliath becomes a parable for innovators (chap. 1), for example, because every element of the innovation process is portrayed: conditions of necessity, positioning for serendipity, atmospheres of fear, reframed experience, permission to fail, motivations of love, and emergence. Successful innovators do not succumb to the fear that surrounds them; they are able to give themselves permission to fail. The Good Samaritan demonstrates *agape* love for the customer, in contrast to the priest and the Levite who are parts of an incumbent administrative hierarchy. The parables of the prodigal son, the talents, and the landowner illustrate forgiveness, persistence, risk-taking, sacrifice, and assessing information from the market. Abraham and Isaac illustrate how introductions (to the market) are sacrificial altars upon which innovators submit their offering (p. 181). The account of Jonah illustrates risk avoidance; Moses at the burning bush illustrates awe and wonder; and Ezekiel's vision of the dry bones illustrates inspiration.

Vincent's descriptions are consistent with my experience with innovation. Many years ago my capstone engineering design professor taught us to saturate our conscious minds with information and then sleep on it, letting the subconscious mind work on the problem. According to Vincent, that method is a key to innovation, and I can report that it has worked for me. On a more recent note, the book has been very helpful for sorting through the complex psychological and legal issues associated with the technology venture that is presently demanding much of my time and energy. Vincent explains how risk, unknowns, and uncertainties are more socially acceptable stand-ins for what really is fear, fear of failure in particular.

Vincent's definitions are heavily market oriented—not surprising in view of his background at Kimberly-Clark, Hewlett-Packard, Sony, and other corporations. "No matter how clever the inventive solution may be," he writes, "if it can't be reduced to practice and made marketable, it will remain disconnected, 'in a distant country,' unable to benefit from an initial failure." But Vincent's faith in the market approaches the religious when he asserts that "the response from the market is trustworthy and purifying" (p. 46). The market perspective is not sufficient, in my opinion, for dealing with technologies not intended for commercialization—as are

many for national security, public safety, emergency response, or creation care. In fact, "green tech" per se is dead on arrival these days. Finding investors for technology that does not show a profit in five years or less is nearly impossible. Unless driven by a government mandate, the market is not interested in reducing greenhouse gases, displacing fossil fuels, producing more food, or saving threatened species.

Surely innovation is part of our earthly mission. God directed humans to continue his work of (or in) creation, to cultivate it for human flourishing; he equipped us to carry out the mandate. Nonetheless, I have no doubt that biblical literalists will struggle with the author's use of scriptures. By *faith*, Vincent means "a nonreligious, a-spiritual capability available to all humans … the belief the innovator has in an idea for an innovation without any real proof that it will work, at least to begin with" (p. 27); it is "potential energy residing in the human system waiting to be released in concrete action" (p. 37). Vincent's faith seems to be in faith itself rather than in a benevolent Creator God. *Righteousness* is equated with meeting the customer's needs (p. 200) and insubordination—going against the employer's directive—may sometimes be necessary. The latter point is problematic for the field of engineering ethics, and in conflict with the principles of accreditation for engineering schools.

Prisoners of Hope is a unique and useful book. I highly recommend it to innovators who are not biblical literalists. The book contains several typos; finding them is left as an exercise for the reader.

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Ethics

THE SACREDNESS OF HUMAN LIFE: Why an Ancient Biblical Vision Is Key to the World's Future by David P. Gushee. Grand Rapids, MI: Eerdmans, 2013. xvi + 423 pages, bibliography, indices. Hardcover; $35.00. ISBN: 9780802844200.

The United Nations Universal Declaration of Human Rights regards "the recognition of the inherent dignity" of all humans beings as foundational for "freedom, justice and peace in the world." But what, precisely, grounds and sustains this belief in the special worth of human beings? It is not simply a self-evident rational deduction. Nor is it something verifiable by empirical observation. Nor is it universally believed and practiced. In fact, throughout most of human history, and in many places in the world even today, humans have *not* typically recognized the special worth of other human beings outside of their own particular society, tribe, class, or group. As David Gushee puts it, "indifference toward most members of our fellow species, with special hatred for a few and special reverence for a different few, seems the common human experience" (p. 25). So where did this important idea come from? And can it be sustained today, along with the conviction to press its implications—even when those implications are inconvenient, costly, or threatening to one's own comfort or security?

In his groundbreaking book, *The Sacredness of Human Life: Why an Ancient Biblical Vision Is Key to the World's Future*, Christian ethicist David P. Gushee sets out to answer these and other important questions concerning the special value of all human life. Gushee has thought long and hard about such issues, and his knowledge and experience as a scholar and activist well qualify him to write such a book. His earlier research sensitized him to the horrors of human life and rights violations, specifically those committed by the Nazis during World War Two (see his *Righteous Gentiles of the Holocaust*; St. Paul, MN: Paragon, 1994). As an activist, Gushee has served on the Committee on Ethics, Religion, and the Holocaust of the US Holocaust Memorial Museum since 2008. He has also served as the president of Evangelicals for Human Rights, has helped to found the New Evangelical Partnership for the Common Good, and is currently involved in the Two Futures Project and the Matthew 5 Project (both peacemaking initiatives).

Gushee's stated aim in *The Sacredness of Human Life* is to contribute "clarity and depth to the moral vision of the church and, perhaps … something constructive to national and global struggles to secure a livable human future" (p. 1). He is motivated by the conviction that "a moral norm called the sacredness of human life *should be* central to the moral vision and practice of followers of Christ" (p. 7; italics original), and he seeks to offer a constructive account of that norm. His method is to recount the origins and historical development of the concept of the sacredness of human life, from its roots in the Bible, through its budding and blossoming in Christian tradition and history (even while acknowledging its neglect and withering in certain times and contexts), to its meaning and implications for the present.

Gushee begins in chapter 1 by clarifying what it means to say that life is sacred. Through conceptual analysis, he defends his preference of the term "sacredness" as carrying theological meaning and depth that rival terms lack. "Sacredness" is "precisely the idea that all human beings have been *consecrated* to a *special status* by *the agency of God*" (italics added). Thus, human beings do not possess sacredness as an inherent quality. They are sacred because God regards and declares them to be so. Other terms, such as "sanctity" and "dignity" are acceptable but not sufficient to account for all that "sacred" includes. Etymologically and conceptually, "sanctity" has moralist connotations (within the domain of words like purity, holiness, and virtue) while "dignity" has roots outside of the Christian tradition, originally associated with the concept of rank in ancient Greco-Roman culture (the term "dignitary" still carries this meaning). After presenting a number of influential Christian definitions of sacredness, Gushee provides his own and then explains and develops it throughout the book.

Chapters 2–4 cover the development of the sacredness of human life in the Old Testament, New Testament (NT), and the early pre-Constantinian church. Gushee's treatment of the biblical texts is thorough and enlightening, covering well-known concepts such as the *imago Dei* (and its christological development in the NT), but also pointing to the broad biblical narrative and to significant theological themes (e.g., creation theology, liberation themes, covenant/legal material, the prophetic vision of *shalom*, the life and teachings of Jesus, and the significance of Christ's incarnation, cross, resurrection, and ascension). Gushee does not ignore "texts of terror" within scripture that could potentially undermine its overarching affirmation of life's sacredness (e.g., God-sanctioned violence, patriarchy, slavery, and anti-Jewish sentiments in the NT). Such texts must be interpreted in light of the life, character, and teachings of Jesus Christ. The early church demonstrated its commitment to this overarching biblical theme through its rejection of war, abortion and infanticide, judicial torment and killing, and through its stress on love without partiality.

Chapter 5 narrates what Gushee calls "the fateful transition to Christendom." Gushee's treatment is refreshingly balanced here. Resisting the popular tendency to place all the blame for the wrongs of the church on Constantine's shoulders, he argues that the post-Constantinian church retained the biblical emphasis on life's sacredness, but also introduced factors that simultaneously undermined that emphasis. Notably, Christianity lost its marginal status and its cultural distinctiveness; this opened the doorway to compromise (e.g., from affirming nonviolence and suffering persecution to sanctioning state violence and the persecution of others). In chapter 6, Gushee provides three case studies that juxtapose a tragic period of Christian history with representative examples of Christians who remained faithful to the biblical-theological vision of the sacredness of human life (the crusades, St. Francis of Assisi; colonialism, Bartolomé de Las Casas; antisemitism, the early Baptist minister Richard Overton).

In chapter 7, Gushee discusses the Enlightenment era, in which belief in the sacredness of human life took on new forms and became grounded in new ways. Though there was a shift away from religious language, much of the substance of the religious tradition survived, and its implementation actually improved through developments in law and politics. Gushee provides a very interesting discussion of John Locke, highlighting the explicitly Christian foundations of his political thought, and of Immanuel Kant, who carried forward the emphasis on human dignity but severed its epistemological basis from its theological roots (probably unsuccessfully, as philosophers such as Nicholas Wolterstorff have argued).

Chapters 8–9 track the rejection of the Christian emphasis on the sacredness of human life in Nietzsche and Hitler. Without demonizing either figure and with due consideration to their biographical and historical contexts, Gushee examines their writings to uncover explicit contempt for human life and the disastrous consequences that ensued.

In chapters 10–11, Gushee considers the implications of the sacredness of human life for several contemporary issues such as abortion, biotechnological innovation, the death penalty, human rights, nuclear weapons, women's rights, and the relationship between human sacredness and the value of nonhuman life and care for the earth. While the latter issue receives a chapter-length treatment, Gushee's engagement with the other contemporary issues is brief and leaves much for consideration, critical questioning, and debate. Chapter 12 provides a helpful summary and conclusion.

The Sacredness of Human Life is comprehensive, highly nuanced, well informed by diverse and relevant interdisciplinary scholarship, and is biblically and theologically thick in its description, argument, and ethical vision. Although not specifically

about science, it is a book that can deeply clarify and strengthen one's understanding and theological convictions concerning why and how one practices science as a Christian. Science can serve the glory and pleasure of the Creator by endeavoring to safeguard and advance the flourishing of all human life. I highly recommend it to the readers of *PSCF*.

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Health and Medicine

HEALTH, HEALING AND THE CHURCH'S MISSION: Biblical Perspectives and Moral Priorities by Willard M. Swartley. Downers Grove, IL: IVP Academic, 2012. 268 pages, bibliography, name index and scripture index. Paperback; $24.00. ISBN: 9780830839742.

The United States healthcare system is burdened with overwhelming expectations. Patients expect high-quality care, but at reduced cost. Providers want to deliver high-quality care, but they find themselves increasingly burdened by administrative and regulatory limitations, which increase cost. The result is decreasing job satisfaction among doctors and an unsatisfied patient population. Professor of New Testament at Anabaptist Mennonite Biblical Seminary, Willard Swartley, has written *Health, Healing and the Church's Mission* to bring fresh perspectives on these very concerns.

This book is broad in its coverage, being broken down into three parts. Part I, Healing, describes biblical and theological perspectives on healing, including the role of the church as a healing community. Part II, Health Care, addresses how health care is delivered currently in the United States, with critique from a biblical perspective, and an introduction to the role the church can play in health care. This section gives a brief history of the role of health care in church and missions history. The last chapter in this section on disability is well written, but seems out of place. Part III, Toward New Paradigms, evaluates health care reform in the United States, including recommendations for the role of the church in providing health care services as an expression of *shalom*. Two appendices introduce ways in which Mennonite and Brethren churches are actively involved in health care.

Despite my enthusiasm for the importance of this issue and the excellent material Swartley has brought together, the book has two significant shortcomings. The author uses poor diction and the organization of the book is inconsistent. Words are used incorrectly and many sentences are awkward. The author uses several Venn diagrams (Figure 2.1, 2.2, 7.1), none of which are clear or used correctly. Errors like this are frequent in this book and interrupt the flow of thought. Furthermore, the book lacks an integrative intellectual argument. For example, in some places the author endorses miracle healings as normative, but he does not explain how to reconcile this position with a more scientific description of healing.

The flow of the material is also inconsistent. For example, on page 160 the author jumps from the founding of the Christian Medical and Dental Society (founded in 1931), to Roman Catholic medical missions in the nineteenth century and then on to Protestant medical missions in the twentieth century. The entire book is rich with excellent information, but it is not well organized. Its literary niche is probably as a course textbook. The author uses footnotes and a bibliography to good effect, and opens up discussion on extremely important issues.

Few would dispute that the church has stood by and done relatively little to make its unique contribution to health care in recent decades. Swartley's burden to see churches reengage and do their part to care for the health needs of people in their communities is long overdue. This book gives the church at large a much-needed challenge to get more involved in health care as an extension of its ministry, and provides practical examples of how to do it.

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History of Science

NUCLEAR FORCES: The Making of the Physicist Hans Bethe by Silvan S. Schweber. Cambridge, MA: Harvard University Press, 2012. 575 pages. Hardcover; $35.00. ISBN: 9780674065871.

Nuclear Forces is the "official" biography of the eminent physicist Hans A. Bethe. Asking Silvan Schweber to write his scientific biography (p. 2) was an excellent choice. Schweber's in-depth and well-documented work goes far beyond a simple biography. In his Introduction, Schweber states his broader objective: to use a thorough biography *"as a vehicle for narrating the history of science"* (p. 3, italics mine).

He notes that although Bethe was an "off-scale" physicist, his lifework, when appropriately seen, "would aid understanding of the field at present and explain how we came to be where we are" (p. 4). As expected, Schweber carefully reviews Bethe's major scientific contributions, but he also examines the significant episodes of Bethe's life and the social, political, religious, and intellectual contexts that shaped them. When helpful, he presents a "mini-biography" of an influential friend, teacher, or other individual, all of which combine to expand the work greatly. Much of this is accessible to the interested reader and well worth a careful reading. The number of truly outstanding scientists and mathematicians that directly or indirectly shaped Hans Bethe is utterly overwhelming, as is the magnitude of his influence on the international physics community. In my opinion, Schweber has succeeded in unpacking the complex relationships among several exceptional physics communities of the previous century, giving us a better understanding of their methodologies, beliefs, and social structures.

I will first outline *Nuclear Forces* and then focus on several issues. Schweber begins with Bethe's childhood in a nominally Christian household with a Jewish mother, Anna, who had converted to Christianity, and a scientist father, Albrecht (p. 36). In his early years he experienced the enormous hardships of life in the Weimar republic (p. 42). Many of the family's friends and colleagues had Jewish roots, and some had converted to Christianity (typically German Lutheranism). There seem to have been open and constructive relationships among Jews and Christians during Bethe's early lifetime, until the Nazis' rise to power. Friendships were extremely significant, both in Bethe's formative years and throughout his life. Schweber suggests that the Jewish notion of "*bildung*," which he sees as sharing sympathies with a "liberal" form of Christianity, provided the moral and intellectual perspective for assimilated Jewish communities and motivated the formation of such friendships (pp. 80ff, 362ff, 386ff). In considerable detail, Schweber describes Bethe's education and mentoring, often sketching the political tensions and the philosophical perspectives in vogue at the time. The early influence of Bethe's father, Privatdozent at Strassburg and later Rektor at Frankfurt University, was very significant. Schweber identifies

> the most valuable lesson that Albrecht Bethe taught his son concerning doing research was that the enjoyment of the search and the satisfaction and gratification from the search are to be valued more than the knowledge gained. (p. 62)

The heart of the book (three detailed chapters, 3–5) carefully describes and analyzes Bethe's doctoral and post-doctorate activities, first in Germany, then in England in the mid-thirties at the Cambridge and Manchester institutes, and on two occasions with Enrico Fermi in Rome. Due to his incredible ability, Bethe was mentored and shaped by many of the outstanding scientists of the early twentieth century. His graduate research professor, Arnold Sommerfeld, was a lecturer so respected that even Einstein wished to attend to perfect his "mathematical-physical knowledge" (p. 104). His list of graduate students reads like a *Who's Who* of the new (quantum and sub-atomic) physics. Remarkably, Sommerfeld would later inform Bethe that he was his best student, and would eventually offer his Munich theoretical physics chair to him (p. 382). Critical roles played by exceptional friends and working colleagues are described, often in fascinating detail. Examples include Rudolf Peierls (Bethe's dearest friend and working colleague at Manchester, who stimulated Bethe's interest in nuclear and stellar physics), Edward Teller (Bethe's "closest friend" from 1935–1943 and a member of Bethe's wedding party), and Eugene Wigner, who would constructively critique Bethe's models. In 1935, needing a new home following his eviction from German universities, Bethe would join the Cornell University physics department. Schweber insightfully unfolds the significant impact Bethe was to have on both theoretical and experimental physics in America.

Schweber also explores Bethe's more human side. His social backwardness during his youth was evidently somewhat extreme, and continued, with significant consequences, well into his younger adulthood. (See chap. 6, "Hilde Levi," concerning Bethe's broken engagement that emotionally wounded Levi and infuriated Niels Bohr as well.) A question of moral insensitivity also came to light during a 1969 interview by Charles Weiner. Weiner asked him about his awareness of organized efforts to aid Jewish refugees during the turbulent years 1933–1935. Bethe himself had just fled to England (with Sommerfeld's help) to escape the Nazis. Bethe responded, "Yes, I was aware of them. I did not do much about it. I'm embarrassed that I didn't help much, but I knew of the effort" (p. 264). The more senior Bethe shares regrets rather similar to those we all harbor due to our own inexcusable inactions. The importance of Bethe's wife, Rose Ewald Bethe, in contributing to his moral stance is also significant. Unfortunately, the chapter that focuses on Rose does not probe these important topics more deeply (chap. 9).

Schweber does note that in 1995 Bethe appealed to scientists not to work on weapons of mass destruction, because "... individual scientists can still influence this process by withholding their skills" (p. 21).

In my opinion, Schweber has succeeded admirably in achieving his goal of narrating the history of science, having covered the rise of the "new physics" with its formation of new concepts and models to describe the molecular, nuclear, and stellar domains. In his analysis, key philosophical and metaphysical issues related to the nature of the scientific endeavor also surface. Furthermore, he colorfully illustrates the divergent "styles" found within prominent research communities of the time. I will attempt to illustrate four of these issues.

Schweber emphasizes that for Bethe the empirical was to be the benchmark over the theoretical, and that good theories must be consistent and engaged with empirical givens. Yet the empirical is not itself theory independent. Schweber describes his view as being somewhat similar to Poincare's: "Science is built up of facts … but an accumulation of facts is no more a science than a heap of stones is a house" (p. 155). This is also related to Thomas Kuhn's position on paradigm shifts. After underscoring the lengthy and intense engagement among research communities, even through many often radical changes, Schweber comments that there must exist a "much greater continuity in the models and the mathematical methods used when 'paradigms' are replaced" than suggested by Kuhn in *The Structure of Scientific Revolutions"* (pp. 12, 222*).*

As Bethe moved from the German institutes to those in England and Italy, his approach to science and his social consciousness were profoundly transformed. Schweber identifies the distinctive style, methodology, and social structure of the prominent research communities that influenced Bethe (p. 166). At Sommerfeld's institute in Munich, Bethe embraced the intensely competitive and rather rude Germanic style of the time (but remarkably not characteristic of Sommerfeld). To illustrate: while working with Paul Ewald (later to be his father-in-law), Bethe gained a critical insight from him. But in the 1921 paper, he gave no acknowledgment of Ewald's significant contribution (p. 166). Schweber attributes this significant lack of common courtesy as being rather typical of the Germanic style. In James Conant's words, it was a "coldhearted, insensitive, merciless demand for excellence … no-holds-barred, inhuman academic world that had been created" (p. 167). However, after spending time with Enrico Fermi at his Rome institute in 1930, Bethe acknowledged that he had been "very rude" to Ewald (p. 172). Furthermore, he embraced Fermi's emphasis on transparency and simplicity and stated that Fermi's method helped free him from Sommerfeld's own absolutely rigorous and exhaustive approach (p. 194). In fact, Schweber notes that Bethe actually combined these contrasting experiences so that

> Bethe's craftsmanship as a physicist became an *amalgam* of what he learned from these two great physicists and teachers, combining the best of both: thoroughness and rigor of Sommerfeld with the clarity and simplicity of Fermi. (p. 196)

Guided by outstanding mentoring, Bethe's strengths, coupled with an incredible mind and mathematical ability, allowed him to become, in Freeman Dyson's words, "… the supreme problem solver of the twentieth century" (dust cover).

In chapter 7, Schweber covers Bethe's move to Cornell University and the events that followed. He first presents a brief, but theologically interesting, history of Cornell's founding. The university's mission was shaped by Andrew White and based on an "enlightened liberalism" (p. 285). In 1935, Cornell wanted to excel in scientific research and hired Bethe as an assistant professor. He soon found himself interacting with many of his German Jewish physics friends who had also fled to American institutions, along with many outstanding American physicists already on the scene (pp. 302–7). From Schweber's detailed historical description, one can see how the very open interaction among many institutions contributed significantly to helping American physics flourish. It took on a collegial character all its own, and Bethe was at the center of its activity and growth.

As questions concerning the structure and age of the universe are of interest to *PSCF* readers, let me highlight the rich historical analysis related to the stellar energy problem (chap. 7). Schweber's presentation is somewhat noteworthy in that he is unconcerned with biblical or theological agendas. He first underscores how radically our view of the natural world had changed by the late nineteenth century. Schweber quotes Robert Ball, who in 1902 identified the most astonishing discovery of the nineteenth century as being the discovery that

> the materials of the sun, of the stars, and of the nebulae are essentially the elements of which our own earth is formed, and with which chemists had already become well acquainted. (p. 499, note 37)

Ball recognized that this new view presented its own host of problems, one being the energy source of the sun needed to account for the earth's presumed

older age. Schweber captures the intense drama and open engagement of physicists in searching for solutions. Bethe was uniquely gifted and poised to solve the stellar energy problem, placing it on a solid foundation, both for the CNO cycle in massive stars (for which he is better known), as well as for the proton-proton cycle in lighter stars (the first step having been suggested by Carl von Weizsäcker). Following the 1938 Washington Conference on Theoretical Physics, at which his interest in the problem had first been kindled, Bethe solved it in short order during a busy year at Cornell. He was awarded the Nobel Physics Prize in 1967 for this work. Schweber ends his in-depth analysis of Bethe's work and life at this point. A few pages are devoted to his subsequent work on quantum electrodynamics and to the war years, during which Bethe served as theoretical physics director at Los Alamos. This book includes several appendixes and some hundred pages of detailed notes and references.

My own impression of Bethe, gained at Cornell while being his final graduate student, is certainly consistent with Schweber's picture. I highly recommend a careful reading of this in-depth presentation of the life of Hans Bethe and the challenging times that shaped him. Do not the greatest works of humankind lend great praise to our Lord of the heavens?

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Origins & Cosmology

MAPPING THE ORIGINS DEBATE: Six Models of the Beginning of Everything by Gerald Rau. Downers Grove, IL: IVP Academic, 2013. 236 pages. Paperback, $18.00. ISBN: 9780830839872.

Although the public debate on origins is typically expressed as two diametrically opposite viewpoints, we in the American Scientific Affiliation recognize multiple viewpoints, such as the four Christian views found in the ASA's Creation Commission report from 2000 (http://www.asa3.org/ASA/topics/Evolution/commission_on_creation.html). In *Mapping the Origins Debate*, Gerald Rau takes a similar approach, using the distinctive steps of carefully defining science, discerning six models along a spectrum of viewpoints, and applying these six models to a scientific description of four areas of origins. In doing so, he offers more than another book on the variety of viewpoints. His book adds a unique analysis by exploring the assumptions and conclusions of the entire range of viewpoints, and by probing the implications in connection to the scientific evidence. All along, Rau states that he will do so objectively, and his success in evaluating these viewpoints objectively is one of the key achievements of this book.

In describing worldviews and the nature of science in the first chapter, Rau does the important work of laying a framework of differing worldviews. He helpfully describes the distinction between naturalist and supernaturalist worldviews in the ultimate terms of the existence of a creator God. His thesis is that the origins debate will continue as long as people hold different worldviews, since they interpret the evidence in the context of their own worldview. Similarly, Rau does a very good job of describing the variety of ways we can discern something in regard to science, including experimental, observational, historical, and theoretical modes of scientific inquiry. He deals with these topics of metaphysics and epistemology in a manner that is accessible to the general reader.

Chapter 2 contains the heart of the map, in which Rau describes six models that fit along a continuous spectrum from which to interpret the scientific evidence: naturalistic evolution, nonteleological evolution, planned evolution, directed evolution, old–earth creation, and young–earth creation. Each model is described by discerning its distinctive features, which are also included as a table in the appendix. With six models, he uses five sets of dichotomous distinguishing features as well as further basic propositions and underlying philosophical features of each position. Rau achieves a remarkable amount of clarity in distinguishing key features of each model in a manner that is at least internally consistent, although he admits that this description could be improved. I find it particularly helpful that this six-model approach contains numerous topics that are at issue, since this helps to capture some of the complexity of deciding among the models. It provides a great starting point for further study or discussion, something which I have already used in the context of teaching, by using this book with biology majors at Wheaton College.

Of the six positions, four would be generally considered as orthodox positions within historic Christianity. Of these, the "directed evolution" position is the most novel position, and Rau describes this position as one that is distinct from other forms of "theistic evolution." In addition, Rau does not include intelligent design as a separate model, but as

an idea that could fit within three of the six models. Again, Rau shows a great deal of objectivity here, fitting intelligent design into his system in a way that both its proponents and critics can appreciate.

Chapters 3–6 deal with the scientific descriptions of four "origins": the origins of the universe, life, species, and humans. For each origin, he considers how each of the six models would interpret the evidence. As he does so, Rau is careful to distinguish between evidence and inference, which is a distinction that is often lost in arguments over origins issues. Again, this is a very useful way in which to discern positions, since often evidence and inference are conflated, especially when arguing for one position over others. After a presentation of the evidence, Rau discerns how the evidence would be interpreted using the assumptions that define each of the six models. For each origin, two to four different interpretations are discernible among the six models, since often several models will agree on how certain origins are described scientifically.

The chapter on the origin of the universe does a fair job of describing the observable evidence that supports the inference of Big Bang cosmology, although this description could be improved. This origin could be considered to be the least controversial of the four, since the evidence observed from the light of stars and galaxies looks directly into the past. The origin of life is the most speculative because of the paucity of observable evidence, and Rau ably summarizes key parts of the work in this field. The chapter on the origin of species contains the strongest description of evidence, as Rau describes sixteen lines of evidence taken from the study of fossils, genetics, and patterns of similarity. Similarly, his discussion of how the evidence is interpreted within the six models provides a helpful framework for considering these issues. The topic of human origins is covered very objectively, considering evidence of differences as well as similarities in regard to comparisons with other primates, particularly with chimpanzees. This chapter also deals with particular theological issues regarding human origins.

Wrapping up the book, Rau next considers what each model has added to the endeavor of understanding origins. It could be argued that he is being too charitable in some cases, but this chapter shows the value of considering alternative interpretations. This practice is often lost in the arguments surrounding creation and evolution, as each side attempts to win the argument, sometimes minimizing the holes in their own position. This is particularly true in the dichotomous approach of using either creation or evolution. His multi-model approach helps to illuminate the gaps of knowledge that some might try to plug with unquestioned answers.

In the final chapter, Rau gets back to the heart of the debate, emphasizing the importance of defining the nature of science. Rau gets it right that differences in how science is understood have resulted in much of the conflict regarding these issues. In some ways, this is reminiscent of the ASA statement on teaching evolution as science (ASA Executive Council, "A Voice for Evolution as Science," *PSCF* 44, no. 4 [1992]: 252). Even though the nature of science can be difficult to define and describe, and even harder to understand without practicing science, this does seem to be the heart of the matter in regard to the origins debate.

It is my hope that this excellent book would be read by many for formation of personal perspective and as a resource to communicate with others. It is written at a level that is accessible to the lay reader, and it would be an excellent book for college students and educators at the secondary and college levels. It has been recommended by the National Science Teachers Association (http://www.nsta.org/recommends/ViewProduct.aspx?ProductID=21528). Moreover, Rau makes some real contributions to the origins topic by engaging the topics of metaphysics and epistemology in the nature of science. This is helpful for the general reader, and could be strengthened by scholars specializing in these areas. Even as Rau mentions in the epilogue to this book, there is not yet a model with which he fully agrees, but he has provided a helpful framework by considering fundamental issues that should be helpful for continuing the discussion on origins in a way that makes real progress.

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ORIGINS: Christian Perspectives on Creation, Evolution, and Intelligent Design by Deborah B. Haarsma and Loren D. Haarsma. Grand Rapids, MI: Faith Alive Christian Resources, 2011. 315 pages, appendix, index. Paperback; $14.99. ISBN: 978-1592555734.

> I have been waiting for a book like this for a long time. I have wanted a book that clearly lays out the options in a textbook like fashion at the introductory level, one which allows the reader to come to his or her own conclusions without a sense of

> coercion, and one which provides a balance between theological and scientific considerations. This comes as close as any I have seen to being that book. I recommend it highly.[1]

So said former President of the BioLogos Foundation, Darrel Falk, in his *PSCF* review of the first edition of this book (previously titled, *Origins: A Reformed Look at Creation, Design, and Evolution*). The second edition of the book is no different in quality; in fact, the updates and title change have only made it better and more accessible to the Christian church at large. The only major differences are the addition of the last chapter ("Wonder and Worship") and the removal of two appendices, the 1972 Statement on Biblical Authority and the 1991 statement on Origins, both by the Christian Reformed Church in North America. The authors made these and other minor updates in order to bring their perspectives on the scientific and theological stories of origins to a broader Christian audience.[2]

Authors Deborah Haarsma (currently president of the BioLogos Foundation) and Loren Haarsma are professors in the Department of Physics and Astronomy at Calvin College and are well versed in matters of science and faith, having written numerous articles and spoken in many venues on the intersection of Christianity and science. It is clear in all of their writing, but especially in this book, that the Haarsmas see bridging science and faith as their ministry, and they pursue it with pastoral hearts. They are to be commended for their efforts and have no doubt helped to strengthen the faith of many.

Origins is an excellent introductory resource for Christians who are interested in what modern or mainstream science has to say about origins and how it fits with biblical and theological accounts. The authors begin with an introduction to the two "books" (i.e., God's "Word" and God's "World"), the interaction of science and worldview, and the process of science. The inclusion of the latter is a plus as many who are not scientists are unaware of the diversity of methods (experimental, observational, historical) that legitimately make up the scientific enterprise. Next, the authors discuss concordist and nonconcordist positions on Genesis and science before moving to a thorough and concise presentation of the basis of origins from the sciences of geology, cosmology, astronomy, biology, and genetics. The authors then compare intelligent design theory with the intelligent design movement, providing nuance that is often lacking in treatments of intelligent design. The book next introduces scientific and theological issues of origins (including Adam and Eve) and provides responses to common questions that arise in discussions of origins. The book ends with a chapter commending science to the reader as leading to reverence and praise of the Creator God. The Haarsmas reflect personally on how understanding the natural world leads to worship and provide practical resources to help church congregations integrate modern science with worshiping God. Most authors of books in this vein share this sentiment but often do not write about it; kudos to the Haarsmas for doing so!

Each chapter ends with a list of additional resources and discussion questions. The questions make the book ideal for small groups or introductory courses in Christianity and science (I will be adopting this book in a future class) and will also encourage deeper reflection by individual readers. Throughout the text, there are links to additional resources and many short articles on the book's website that provide more detailed content.[3] This is an excellent idea as it is freely available to all visitors and potentially enables the authors to expand and update the book without having to expand and reprint the book!

I highly recommend this book. It has a great pace and is written with a caring and gentle spirit. Also, the authors are thorough and systematic in their treatment of the issues. For example, in the chapters on interpretations of Genesis, no fewer than nine interpretations are presented, each with its weaknesses and strengths. A similar treatment is provided for five potential "scenarios" for Adam and Eve. Throughout, scientific evidence, biblical hermeneutics, and theology are presented collectively, and the authors do not force a particular interpretation on the reader. That said, they are faithful to the scientific data and range of biblical scholarship, pointing out those models and scenarios that are incompatible with science or traditional biblical interpretations. The tone is outstanding and the authors' passion for the material and their desire to help Christians reconcile science and faith leaps from the pages.

A strength of the book lies in its concise presentation of various topics. That said, because it is written at an introductory level, those looking for greater exploration might be disappointed. I do not believe this is a mistake or oversight by the authors, as they are not writing for an academic audience. Nevertheless, I found myself wanting more specific examples in their scientific exploration of origins. In addition, in multiple instances more nuance would have

improved the book as certain atheist positions were at times misrepresented or oversimplified. I appreciate that the book has an intended audience in mind and that one cannot include everything; however, a key issue in discussions of science and faith is misrepresentation of others' positions. Furthermore, it is likely that for the most conservative readers the treatment of theological issues at stake in the discussion of origins (the image of God, the human soul, original sin, human mortality before the Fall) will not be satisfactory. The authors make a great effort to balance the discussion with both theology and science, but because they are scientists it is only natural that they would spend more time on the science. For those readers that believe one must start with the Bible, their attempts may not be sufficient.

Even with its limitations, the book is excellent and is one of the best available for its intended Christian audience. It is concise, easy to read, broad in scope, systematically organized, and grounded in grace. The authors present a variety of interpretations and models and allow the evidence and biblical scholarship to guide the reader. This is the type of book that Christian professors and pastors will keep near to them (and want multiple copies of) as we/they will often reference it in conversations with our students and parishioners. Very highly recommended.

Notes

[1]Darrel Falk, "Origins: A Reformed Look at Creation, Design, and Evolution" review, *Perspectives on Science and Christian Faith* 60, no. 2 (2008): 134.

[2]The only limitation mentioned by Falk in his review of the first edition was that the book was focused on addressing issues of science and faith from the Reformed perspective. The second edition addresses this limitation while also maintaining the strengths of the first.

[3]http://www.faithaliveonline.org/origins/. The site also has a sample chapter available for download.

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PSYCHOLOGY

THE PSYCHOLOGY OF PERSONHOOD: Philosophical, Historical, Social-Developmental and Narrative Perspectives by Jack Martin and Mark H. Bickhard, eds. New York: Cambridge University Press, 2013. 241 pages. Hardcover; $99.00. ISBN: 978-1107018082.

Psychology's quest to be taken seriously as a science has included a reliance on empirical approaches to studying human behavior, a pervasive focus on the physiological factors of persons, and a reductionist view of personhood. Martin and Bickhard's book attempts to critique this reductionist view of persons as objects and seeks to invite the reader into the efforts toward a "more holistic, integrative, and methodologically open psychology." The text accomplishes some of its aim, but neglects important considerations of personhood.

The Psychology of Personhood is divided into four sections. The first discusses philosophical perspectives of personhood. Chapter one traces the varying grammatical meanings of the words "person" and "personality," and makes a strong case for the integral role that history and culture play in these considerations. The second chapter discusses how psychology's view of persons is influenced by multiple layers of historical understandings of personhood, beginning with ancient ideas. The author makes a strong case that psychologists' relative ignorance regarding historical influences on ideas of personhood leads them to think that their current ideas of humans are objective and enduring.

Part Two deals with psychology's view of persons from an historical viewpoint. This was at first confusing, because it seemed redundant with Part One. Yet the authors in this section focus more on specific theorists/philosophers of personhood. The first chapter reviews the history of the word "person" and ends with a discussion of how psychology developed a "dissected" view of persons, one that is fragmented rather than holistic. The second chapter reviews Foucault's heirs, Hacking and Rose, and their views of the historical ontology of personhood. The author makes a good point that psychologists think of personhood as a fixed concept rather than one based on the influences of a particular time and place. Yet, these two chapters were at times hard to follow due to the complexity of some of the wording. In addition, a lengthy description of human agency in the second chapter neglects to consider important new research in psychology regarding self-regulation. The third chapter reviews the tenets of "critical personalism," which assumes an enduring sense of personal qualities and characteristics without being deterministic in that it allows for "potentialities" that can go in different directions. This chapter also provides a good critique of psychology's overreliance on the empirical approach to studying humans and its neglect of philosophical perspectives of humans.

Part Three explores social-developmental and evolutionary perspectives on personhood. The first chapter discusses the development of the human

sense of self and others, and presents an evolutionary view that this ability to identify the you-me distinction emerged from our primal ancestors' reciprocal altruism. Given the antireductionist aim of the book, this view is ironically reductionist and is based on naturalist accounts of humans. The next chapter reviews person exchange theory, which emphasizes that we understand ourselves and others as a result of the different positions we play in different social exchanges. Thus our impressions of self and others are not mental acts, but social processes that are a result of our evolutionary past. This chapter seemed to overemphasize the directionality of cause, assuming that social position *causes* our perception of self and others; it does not take into account how our sense of self (and others) may also lead to taking a different position. The authors briefly attempt to address this at the very end of the chapter, noting how social structures that do not enable people for a full range of positioning are destructive (e.g., apartheid). But this seems a weak argument for the dignity and worth of humans based on the authors' preceding discussion. The final chapter reiterates some of the main points of a transformative activist stance of personhood. This emphasizes social interaction as the most important factor in our fluid sense of self, where people "collectively create their own lives and their own nature." This chapter neglects to consider the commonalities in humans found across cultures. The author makes it seem as though our identity is infinitely malleable.

The last section of the text follows and expands upon narrative theories of personhood. Its two chapters focus on how life stories and narratives create and re-create our sense of self and others.

I applaud the editors' efforts to look critically at psychology's reductionist stance of personhood and to consider alternate ways of studying humans besides the empiricist approach. They make clear that one's assumptions of personhood are not inconsequential. Yet, the book is often hard to follow due to complex wording and long sentences. This complexity obscures what sort of audience the editors have invited to participate in the conversation about personhood. For undergraduate personality classes, this would be too difficult a text. The text seems to offer no middle ground for psychologists who are empiricists and might be interested in studying personhood from a broader perspective. The intended audience seems to be those theorists who support a more postmodern, narrative approach to understanding the human condition, so the potential influence of this book is limited.

There also are no non-Western scholars represented in the text. This is of special note, given the more communal understandings of persons that such cultures tend to embrace.

One of the most glaring omissions in this text is a neglect of theological perspectives of personhood in any substantive way. While the editors claim to be antireductionists, their overwhelming focus on social-cultural determinants of personhood without considering possible spiritual factors is itself reductionistic. The authors never mention well-known Christian scholars who have developed robust models of personality based on enduring scriptural principles, many of which contradict psychology's reductionist views. This omission of theological perspectives also applies to the emerging Islamic psychology, which offers a substantive, nonreductionist view of persons.

The editors note that there is no unifying idea of personhood that emerges from their text. This much was clear and fair enough. Yet, this reader was not left with the impression that the text made any clear case for the dignity and worth of humans either, and it is the case for the dignity of persons that will be, in my humble opinion, the most compelling argument against psychology's reductionism.

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Letters

Types of Atheism

I read with interest the article by Eugene A. Curry on the topic, "Do the Polls Show That Science Leads to Atheism?" (*PSCF* 65, no. 2 [2013]: 75–8). I agree with his analysis that more often than not, atheistic scientists, "far from being pushed to atheism by science, generally arrive at their atheism for reasons unrelated to their science and then persist in their atheism despite their science."

In my experience with scientists who claim to be atheists, whether in the West or in the former Soviet Union countries, their claim is based on a prior commitment to materialism, as confessed by Richard Lewontin. In fact, Eugene Peterson in his book, *Where Your Treasure Is,* identifies several types of atheists.[1] Below I have adapted Peterson's classifica-