

PERSPECTIVES on Science and Christian Faith

JOURNAL OF THE AMERICAN SCIENTIFIC AFFILIATION

In This 75th Anniversary of ASA Issue ...

1941–2016: The American Scientific Affiliation at 75

Bernard Ramm's Scientific Approach to Theology

The Changing Face of the Science-Faith Dialogue
in a Biomedical Arena

The ASA Does Not Take an Official Position on
Controversial Questions

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ASA Executive Director, 2005–2016

*"The fear of the Lord
is the beginning of Wisdom."*
Psalm 111:10

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1. Submit all manuscripts to: **James C. Peterson, Editor, Roanoke College, 221 College Lane, Salem, VA 24153.** E-mail: jpeterson@roanoke.edu. Submissions are typically acknowledged within 10 days of their receipt.
2. Authors must submit **an electronic copy of the manuscript formatted in Word** as an email attachment. Typically 2–3 anonymous reviewers critique each manuscript considered for publication.
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ARTICLES are major treatments of a particular subject relating science to a Christian position. Such papers should be at least 2,000 words but **not more than 8,000 words in length**, excluding endnotes. An abstract of 50–150 words is required and should be in both the text of the email submission and at the beginning of the attached essay. Publication for such papers normally takes 9–12 months from the time of acceptance.

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James C. Peterson

Since ASA Is Open to Dialogue, Would *PSCF* Publish an Article Advocating Geo-centrism?

At the 2016 ASA Annual Meeting, I was asked the above-titled question, no doubt to test how open *Perspectives on Science and Christian Faith* (*PSCF*) is to minority views. Let me say in response that science continues to grow in its achievements and influence. The Christian faith is the world's most global movement. Where they meet, the ASA has pioneered for 75 years. When you turn the page that you are reading now, you will see the front cover page and foreword of the first issue of this journal, then known as the *Journal of the American Scientific Affiliation* (*JASA*). Over the years, our purpose has remained quite consistent: to bring into dialogue the best of the sciences and Christian faith. To begin this issue, Chris Rios traces some of that conversation through several anniversaries. He notices that a distinctive commitment of ASA from the beginning has been to welcome into fellowship Christians of diverse views. The ASA and *PSCF* then provide a place for active listening and testing of one another's perspectives. That is essential to understand better our callings in the sciences and as part of God's people.

Groups have split off from the ASA to advocate for one particular perspective or another, but even then membership in the ASA and the new advocate groups have often substantially overlapped. What has held the ASA together has been an abiding commitment to pursue the best of both the sciences and Christian theology. At the journal, double-blind peer review is an important part of implementing that commitment. If an essay were to be submitted to the journal advocating geo-centrism, the first question would be whether the author showed the required mastery of the available data. Is the thesis sustained with an informed discussion of the applicable literature and interpretation? While geo-centrism did have its day, at this point it would fail that standard, and so the editor would send such an essay back to the author with a courteous explanation of what is needed to begin peer review.

But openness to new readings is also a deep commitment of both the ASA and the journal. If an essay appears to have a case worthy of peer reviewer time, expert peer reviewers are not asked if they agree with the author. They are asked if the author makes an informed and compelling case for a new and important contribution. That contribution might be quite different from what has been argued previously. Such is most welcome. Consensus views usually start as minority, or even solitary, views.

In this issue, Andrew Kim describes the rigorous explorations that Bernard Ramm published in *JASA* over many years. In the following article, D. Gareth Jones expresses appreciation for the fairness of ASA and *PSCF* in the discussion of bioethics. Terry Gray then writes of the challenges and advantages of wrestling openly through important topics, as *PSCF* has and, he argues, should continue to do so. Randy Isaac completes the issue, and his tenure as Executive Director, in an interview about how he always sought both to make the wide range of members feel welcome, and to spur thoughtful debate toward better understanding. He speaks as well of his hopes for ASA in the years ahead.

As cannot be said too often, all truth is God's truth. Of course, we have discovered only a sliver of that truth so far. The more we do actually learn, the more aware we become of what we do not yet know. But there is much to gain from doing what we can to understand better God's world and his calling for his people in it. The ASA at 75, and *PSCF* as a prominent part of ASA's work, have a fascinating and rewarding mission. What a challenging joy for us to work together to carry it forward into the next 75 years. ■

James C. Peterson, *editor-in-chief*

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The fear of the Lord is the beginning of wisdom. Psalm 111:10

Volume 1

Number 1

- FOREWORD -

The first issue of the A.S.A. Bulletin is now in your hands. We would like to indicate by this note the purpose of the Bulletin, the editorial policy to be followed in accepting papers for publication, and the mechanism of publishing the first few issues. It is also our purpose to encourage hereby the greatest possible participation by various members in this undertaking.

The purpose of the A.S.A. Bulletin is manifold. It is intended primarily for the benefit of the A.S.A. members, and interested friends, and it is hoped that it will be instrumental in helping the organization achieve its primary purpose of witnessing to the truth of the Scriptures and elucidating the relationship of both the ideology and fruits of science thereto. Furthermore we confidently expect that in the publication of papers presented at the convention and others received from the membership at large, a real service will be rendered each of us in creating an enlarged appreciation and understanding of the Christian position in other fields of science than that of our own specialization. Also thru the A.S.A. Bulletin, we plan to give every interested member the benefit of a constructive criticism and Christian evaluation of papers presented and of reviews of books of great interest or strategic importance.

If this purpose is to be fulfilled, the cooperation of many members will be necessary. Some will be asked to write book reviews, others will be requested to outline the main problems in their field of specialization relating to science and the Scriptures, and all are expected to submit for publication articles of general interest. Not only is participation in these respects greatly desired, but earnest prayer for the success of this undertaking is sincerely requested.

The Bulletin will contain editorials from time to time. The present and past members of the Executive Council will serve as an editorial staff. Papers submitted will be referred for critical appraisal to a committee consisting of members of the A.S.A. who are specialized in the field with which the paper is concerned. These committees, appointed for each separate paper by the editor, will serve as referees and their recommendations will determine whether a paper is published. Papers submitted at the National Convention will not be handled in this way since the discussion following each convention paper serves to evaluate it.

A word of explanation of the mechanism of publication seems in order. The editor receives, assembles, edits, and prepares all material for publication in accordance with the foregoing procedure. This finished material is then forwarded to the Secretary-Treasurer, Professor Russell L. Mixter in Wheaton, Illinois for mimeographing or printing, and mailing. The format of the Bulletin is largely left up to Professor Mixter, and the question of whether it is mimeographed or printed will depend primarily on the relative expense involved.

Finally, we would like to invite suggestions. While we realize perfection, at least in the eyes of all, is probably impossible, we would like to be sure that the Bulletin meets a fair standard of acceptability. This can probably best be assured by your comments and suggestions.

M.D.B.

This foreword was written by Marion D. Barnes, ASA secretary-treasurer (1944-1948). It was published in the first issue of the first volume of the journal on January 7, 1949, in Wheaton, Illinois.



Christopher M. Rios

Article

1941–2016: The American Scientific Affiliation at 75

Christopher M. Rios

The year 2016 marks the American Scientific Affiliation's seventy-fifth anniversary. Such milestones provide opportunities to reflect on one's heritage, assess the current state of affairs, and look to what lies ahead. This essay offers a reflection, a brief reminder of the issues facing the organization at the beginning, at the twenty-fifth, and at the fiftieth anniversaries.

The ASA at the Beginning

The American Scientific Affiliation (ASA) was founded in Chicago in September 1941 when five evangelical scientists met to discuss the formation of a “society for the correlation of science and the Bible.”¹ The meeting came at the invitation of William H. Houghton (1887–1947), president of Moody Bible Institute, and was the result of a friendship he had developed with F. Alton Everest (1909–2005) and Irwin A. Moon (1907–1986).

Though Houghton issued the call, it was Moon, a former MBI student and scientifically minded pastor and preacher gaining attention for his spectacular “Sermons from Science,” who proposed the formation of an association of evangelical scientists. His interactions with students through his national preaching tours made him keenly aware of how science both captured the imagination and challenged the faith of Christian youth. By 1940, he, Houghton, and Everest, a Baptist electrical engineer at Oregon State College who would become the leader of the young ASA, determined that a group of Bible-believing scientists could do much to buttress the faith of Christian students and help ministers address the growing scientific questions they faced.

The invitations were sent in June. Five men answered the call: Everest, biologist John P. Van Haitisma (1884–1965), mathematician Peter W. Stoner (1888–1980), chemist Russell D. Sturgis (1897–1969), and chemist Irving A. Cowperthwaite (1904–1999). This group would never meet again, but the week they spent together in the early fall of 1941 laid the groundwork for a renewed effort to reconcile science and Christian faith.²

The founding of the ASA marks a reawakening of the evangelical engagement with science in the United States, an engagement that was at its nadir in 1940. For the majority of their history, evangelicals could claim a robust and diverse relationship with science. Since the time of John Wesley (1703–1791) and George Whitefield (1714–1770), they variously promoted, dismissed, advanced, challenged, advocated for, and benefited from developments in science and the scientific mindset. Indeed, for most of this period, science was just as often considered a friend of Christianity as it was a foe.

Yet, in the late nineteenth and early twentieth centuries, this tradition was overshadowed by a rejection of scientific orthodoxy that seemed to define evangelical views. Darwin's theory of evolution is commonly seen as the catalyst for this change, but it was only one cause of increased tensions. Higher criticism, with its challenge of traditional views of

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scripture, seemed equally threatening, if not more so. Similarly, the twentieth-century development of the social sciences, with their examination and reassessment of the sources of religious faith and experience, brought challenges that for some dwarfed the threat of Darwinism. The result was a feeling that modern science had become defined by theories that undermined biblical faith; by the 1920s, an antiscience, especially antievolutionary, movement was sweeping through many parts of the nation.

Science, historians have shown, was not the only or even the most crucial cause of this reaction. The antievolution crusades of the 1920s were as much a response to social changes and debates over national identity as they were about evolution.³ Nevertheless, religious rhetoric that pitted science against Christianity or described Darwinism as the first step on the path to atheism prompted a popular resistance to the scientific mainstream that was unprecedented within the evangelical faith.

The founders of the ASA shared many of the concerns held by fundamentalists of their generation, but the organization they created lacked the narrow commitments that defined other conservative groups. They agreed that modern attitudes had disrupted the harmony that had existed between science and the Bible. Yet they also recognized that the churches had played no small part in creating the discord. In their view, widespread scientific ignorance among seminary faculty, pastors, and Sunday school teachers led to preaching and teaching that both offended the educated and weakened the faith of those pursuing a college education. Harmony was possible, Everest and the others were convinced, but it had to be established with the day's best science. The founding of the ASA was thus a reawakening of an attitude that had lain dormant for nearly a generation.⁴

1966: The ASA at 25

The ASA had much to celebrate when it commemorated its twenty-fifth anniversary at North Park College in Chicago in the summer of 1966. The United States's entry into World War II, which came just months after Everest and the others met in 1941, interrupted early plans. But as the war drew to a close, ASA activities gained momentum. Annual meetings started in 1946. The *Journal of the American Scientific Affiliation (JASA)* began in 1949. Two books

were published by 1950. And membership grew steadily. By the mid 1960s, the ASA had over a thousand members and a dozen regional groups in locations throughout the country from New York and New England to San Francisco and Southern California. These developments were signs of considerable progress.

The twenty-fifth anniversary also came at a time when tensions were high within the organization, and they were easy to detect. Organizers of that year's annual meeting arranged an eighteen-member panel on the "Future of the ASA" that included some of the group's most prominent figures. It also included those who held strongly opposing views. If the hopes were that such diversity would reflect well on the organization, the results seem to have been otherwise. An ASA newsletter later reported that the impression left on those in attendance was "considerably more negative" than expected.⁵

The tension evident at North Park College was the result of changes that had occurred during the organization's first twenty-five years, especially the gradual acceptance of evolution by many of the group's leaders. ASA founders shared many of the reservations about evolution common within the evangelical churches in the interwar years. Yet they nevertheless committed themselves to an openness about these and other matters that distinguished the ASA from other organizations. This commitment, combined with the founders' vision of elevating scientific thinking within the churches, prompted an engagement with ideas that many questioned, and it set the stage for developments that few would have expected.

Demanding immediate attention were questions about the age of the earth. Since the 1920s, flood geology—the idea that "true science" supported the biblical depiction of Earth's age as only a few thousand years and that the evidence of its antiquity was explainable by the flood depicted in the Book of Genesis—had steadily grown in influence within the evangelical churches. Early ASA leaders rejected these views and went to great lengths both to affirm the scientific understanding of the earth's antiquity and to show how it could be reconciled with the Bible. These early developments signaled not only the ASA's commitment to professional science, but also its unwillingness to allow literalistic readings of scripture to determine scientific or

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theological views. As the ASA took its stand against flood geology, leaders began to warm to the idea that evolution offered a valid understanding of God's creative work. By the time Everest commemorated the organization's first decade, he had already come to believe that "the Bible does not give unequivocal grounds for being anti-evolutionary."⁶ By the early 1960s, prominent members not only came to see evolution as a valid understanding of God's creative work, but also advocated for its acceptance among evangelicals.

Despite these efforts, and partly in response to them, the early 1960s witnessed a reawakening of the anti-evolutionary mood that flourished in the interwar period. In 1961, John C. Whitcomb (b. 1924) and Henry M. Morris (1918–2006) published *The Genesis Flood*, a work that helped to define and promote young-earth creationism throughout the remainder of the century. In 1963, a group of antievolutionists broke away from the ASA to form the Creation Research Society (CRS), an alternative organization committed to young-earth creationism and exclusively concerned with the question of origins. Seven of the ten CRS founders were ASA members, a number that suggests the level of frustration felt by some within the ASA concerning the group's direction. Still, most members showed little sympathy for the attempt to oppose mainstream science simply because of its apparent disagreement with scripture, in this way maintaining the attitude of the ASA founders.

Three factors gave rise to the ASA's changing views about evolution. First was the group's commitment to authentic science and openness to controversial views, the latter demonstrated not only by the panel convened in 1966 but also in the ASA's attempted collaboration with the CRS throughout the following years. Second was the personal example offered by those who demonstrated the ability to reconcile evolutionary science with biblical faith. Figures such as theologian Bernard Ramm (1916–1992), biologist Russell Mixter (1906–2007), geneticist V. Elving Anderson (1921–2014), and chemist Walter R. Hearn (b. 1926) are just a few of the ASA members whose commitment to science and scripture inspired a generation. Third, and perhaps most important, were the ASA's developing views of scripture.

Scientific discoveries have long prompted debates about the Bible's accuracy and authority. Today,

challenges brought by natural science receive the majority of popular attention, but higher criticism and other forms of literary analysis have often been a more threatening source of contention. For instance, the Victoria Institute, a British organization founded in 1865 to defend Christianity against Darwinism, was initially more concerned with the higher critical views expressed in *Essays and Reviews* (1860) than with *Origin of Species* (1859). It was clear that the scientific examination of scripture could be just as troubling as the scientific study of nature, if not more so. Still, since higher criticism was discussed mainly in academic circles and thus relatively easy to ignore, most Christians were only vaguely aware of the challenges it posed or were quickly dismissive of it as scholarly mumbo jumbo that interfered with the Bible's true message. Many Americans throughout the twentieth century would have affirmed former US President Grover Cleveland's famous line about wanting the Bible without "notes or criticisms or explanations about authorship or origin, or even cross-references. I do not need or understand them, and they confuse me."⁷

Evolution, on the other hand, was not so easy to ignore. The development of public education in the early twentieth century and the emphasis put on high school science in the 1960s confronted Americans with views that many assumed contradicted the biblical message. For most, coming to terms with these challenges required either questioning the science or reassessing one's understanding of the Bible. Thus, questions about biblical interpretation came to play a major role in the development of an organization committed to both science and scripture.

The ASA's evolving views about scripture were evident in its periodic revision of the group's statement of faith. The original creed affirmed belief in "the whole Bible as originally given, to be the inspired work of God, the only unerring guide of faith and conduct."⁸ A member had to affirm that "since God is the Author of this Book, as well as the Creator and Sustainer of the physical world about us, I cannot conceive of discrepancies between statements in the Bible and the real facts of science."⁹ By 1950, the creed was shortened to belief in "the unique inspiration, integrity, and authority of the Bible as the word of God."¹⁰ By the end of the decade, the statement was revised to the belief that "the Holy Scriptures are the inspired Word of God, the only unerring

guide of faith and conduct.”¹¹ These changes were not intended to reflect a weakened commitment to scripture but a clarification of what that commitment meant. By the mid-1960s, such questions were among the most contentious issues facing the ASA. Members wrestled with what it meant to affirm the authority and inspiration of scripture without insisting on the historical and scientific interpretation demanded by the CRS or other fundamentalist Christians.

These issues were in no way settled by 1966. Nevertheless, the group had set a course that, while upsetting some, for many others made the founders’ goals possible. As a sign of things to come, perhaps, Everest’s report on the twenty-fifth anniversary meeting gave a nod to the “hermeneutic trouble[s]” plaguing the organization. The ASA had found a way to establish peace between science and the Bible, but it still proved elusive among the members.

1991: The ASA at 50

The ASA’s fiftieth anniversary, celebrated at Wheaton College, Illinois, came in the midst of yet another spike in national debates about science and religion. The previous decade had heard widespread calls for “equal time” laws, which sought to mitigate the influence of evolutionary science in the public schools by requiring teachers to give equal attention to “competing theories” of natural history, namely, scientific creationism. Such theories hardly qualified as science. Nevertheless, by the early 1980s, three-quarters of the nation favored equal time for both evolution and the “biblical theory of creation” in science classrooms.

When states began to require equal time in their schools, a backlash from advocacy groups, anti-religious public intellectuals, and the scientific community helped thrust the debates into the cultural spotlight. Legal challenges by the ACLU resulted in a 7–2 decision by the Supreme Court in 1987 that ruled such laws unconstitutional because they were intended “clearly to advance [a] religious viewpoint.”¹²

Meanwhile, Richard Dawkins’s 1986 publication of *The Blind Watchmaker* began to popularize antireligious ideas in the name of science in a way unmatched since the logical positivists nearly a cen-

tury earlier. As is often the case, Dawkins’s efforts motivated his adversaries as much as his supporters, giving impetus to the rise of both “new atheism” and the intelligent design (ID) movement in the following decades. With such apparent antagonism between science and Christianity dominating the public arena, it is understandable that J. W. Haas Jr., commenting on the ASA’s fiftieth anniversary, described the ASA’s goal of encouraging a positive attitude toward science as even “more formidable” than it was in 1941.¹³ If the loudest voices had it right, Christians stood resolutely against evolution, science disproved the claims of the faithful, and those seeking harmony were guilty of unjust compromise.

The ASA, of course, took great interest in these matters, especially in the scientific community’s response to the popularity of scientific creationism. In 1984, the National Academy of Sciences (NAS) published *Science and Creationism: A View from the National Academy of Sciences*.¹⁴ A slim booklet of less than thirty pages, *Science and Creationism* sought to confront the claims made in favor of equal time laws by distinguishing between scientific and creationist ideas. Science was based on measurement, discovery, testing, validation, and evidence. Creationism met none of those criteria and thus deserved no place in science classrooms. Reintroducing creationism into the public schools, the booklet stated, “would be akin to requiring the teaching of Ptolemaic astronomy or pre-Columbian geography ... Creationism, with its accounts of the origin of life by supernatural means, is not science,” and teaching it threatens the need for a “scientifically literate citizenry.”¹⁵ Still, the NAS booklet attempted to separate its criticism of creationism from a broader criticism of religious faith: “It is false,” the authors wrote, “to think that the theory of evolution represents an irreconcilable conflict between religion and science.”¹⁶

Two years later the ASA entered the conversation by releasing *Teaching Science in a Climate of Controversy: A View from the American Scientific Affiliation*.¹⁷ Produced largely as a response to the NAS publication, *Teaching Science* intended neither to attack nor defend creationism, but rather to show that “a broad middle ground” existed between those who reject evolution because of their faith and those who reject Christianity because of evolution—space that allowed considerable opportunity for teaching about science.¹⁸ The authors also aimed to help

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science teachers do more than simply dispense scientific facts; they could rather accomplish the “more significant task” of showing how scientists look at the world.¹⁹ Teaching in this way, the authors hoped, would foster “not blind faith in science but understanding and a reasonable amount of public trust.”²⁰

Teaching Science epitomized the ASA’s commitment to openness in controversial areas, especially as it related to the theory of evolution. Despite the group’s defense of an evolutionary view of creation, it refused to make it an official position of the ASA. This stance was born of a deeply engrained commitment to neutrality in areas of disagreement. It also reflected the popularity of antievolutionism within American churches. The text thus walked a fine line. It affirmed the antiquity of the earth and evolution overall, but took issue with the NAS’s conclusions about the certainty of evolutionary science, especially its unqualified treatment of human evolution. It also emphasized a lack of fossil evidence for the evolution of life prior to the Cambrian explosion and called for more transparency on the part of public educators about the gaps in the geological record. The authors highlighted similar questions that remained about human evolution and criticized the NAS for its claim that “the ‘missing links’ that troubled Darwin and his followers are no longer missing.”²¹ In this regard, wrote the biochemist John E. Halver, author of the work’s preface and a member of both the NAS and ASA, the NAS’s claims “ignored certain unresolved problems that should be an integral part of scientific education.”²²

The willingness to equivocate on the certainty of evolutionary science brought criticism from the scientific establishment and perpetuated confusion about the ASA’s identity. In 1987, science journalist Constance Holden named the ASA booklet as evidence of the “increased sophistication” of antiscience groups in the public square.²³ An even harsher assessment came from William V. Mayer, professor of biology at the University of Colorado, Boulder, and prominent member of the National Association of Biology Teachers. Mayer described the ASA as a group that attempted to provide “a veneer of scientific respectability for hyperorthodox Christian fundamentalism masquerading as science.”²⁴ He described *Teaching Science* as “insidious” not only because of its “clandestine agenda,” but also because “it’s a very good public relations piece.”²⁵ Such descriptions were

hardly accurate, but they reflected the misunderstanding caused by the group’s position.

A fairer assessment came from Francisco J. Ayala, an esteemed evolutionary biologist and geneticist and one of the authors of the NAS booklet. Ayala’s own faith and efforts to reconcile Christianity and science made him sympathetic to the ASA. Yet he saw the group’s unwillingness to fully support evolutionary science as a “radical inconsistency” with its goals and a “missed opportunity” to make real strides in ameliorating the tension. Ayala was not misinformed about the ASA overall, and he certainly did not confuse it with organizations like the CRS. His criticism instead focused on the booklet’s equivocation over evolution and its emphasis on the unanswered questions. By doing so, Ayala argued, *Teaching Science* “failed the opportunity of explaining ... how a religious view of the world is compatible with scientific knowledge.”²⁶ Despite such criticism, ASA leaders have remembered *Teaching Science* as an “outstanding example of the ASA’s concern with students and the process of education,” and pointed to it as an example of the ASA’s desire to help bridge the scientific and Christian communities.²⁷

Another example of this desire was the wide variety of topics ASA members engaged throughout the decades. By the mid-1950s, the journal regularly published articles on issues ranging from biology to archeology to sociology. In the group’s second quarter century the array of subjects became vast. In 1991 alone, *Perspectives on Science and Christian Faith (PSCF)* published articles on physics, medical ethics, genetics, economics, psychology and neuroscience, and the coming of the information age. Just one of the topics that earned repeated attention was the environmental crisis. Consideration of the global population explosion came as early as 1961. By the 1970s, ecology and environmentalism became recurring themes at conferences and in the journal. Contributors explored issues such as the effects that human population growth and the modern consumer culture had on the environment, what the Genesis mandate concerning human dominion meant when it came to care of the environment, and how the biblical demand for social justice should influence attitudes toward the preservation and distribution of Earth’s resources. Nevertheless, the evolution controversies were never far from the group’s attention, and as *Teaching Science* symbolized, these topics touched on tensions that remained deeply rooted in

the ASA, tensions that pointed to fundamental questions facing the organization and that were coming to the fore in 1991.

For the ASA's fiftieth anniversary, *PSCF* published an essay by physicist Richard Bube that outlined his view of the pitfalls and possibilities facing the organization. Bube, perhaps the most prominent ASA figure during the previous quarter century, began by explaining the group's identity and purpose as (1) helping solve potential conflict between science and Christianity without departing from either "authentic science or authentic biblical theology" and (2) setting forth its ideas in a manner accessible to scientists and nonscientists alike.²⁸ Since its inception, the ASA had sought to foster productive dialogue and debate about important issues, but reaching a broad audience was a perennial difficulty, in part because the organization tried to reach two vastly different groups. Bube put it thus:

We face a tension here that draws us on the one hand toward becoming an increasingly elite society of scholars ... On the other hand, we could just as easily be drawn to ... service to our Christian community and outreach beyond that community for evangelism.²⁹

The former would make ASA esoteric. The latter would make it irrelevant to professional scientists and theologians. The goal for Bube was somehow to cultivate a variety of conversations, some scholarly and specialized, others general and aimed at an audience outside the laboratory or the ivory tower.

This challenge was only complicated by the ASA's commitment to orthodoxy in both science and theology, and the need to avoid what Bube called the twin threats of pseudoscience and pseudotheology. The term "pseudoscience" had been in use since the mid-nineteenth century to identify a wide variety of ideas ranging from phrenology and UFO sightings to evolution and creationism.³⁰ What qualified as pseudoscience often lay in the eye of the accuser. As Bube described it, pseudoscience occurred

whenever the methods of interpretation suitable for this mode of revelation [i.e., science] are rejected, whenever scientific concepts and constructs are dictated by nonscientific concerns, and whenever science is called upon to provide information or guidelines in areas where it is unable to do so.³¹

Similarly, pseudotheology occurred

whenever the methods of interpretation for this mode of revelation [i.e., theology] are rejected, whenever theological concepts and constructs are dictated by non-theological concerns, and whenever theology is called upon to provide information or guidelines in areas where it is unable authentically to do so.³²

Both errors thus stemmed from confusion about the proper methods and boundaries of the disciplines, especially when those relevant to one area were applied to the other.

Bube offered two examples of this improper blending of science and theology. The first was "scientific theology," a phrase that had seen a spike in usage since the late 1960s, in no small part due to the Scottish theologian T. F. Torrance. In the early 1970s, Torrance employed the phrase in a series of lectures that called for a new connection between scientific and theological understandings that would allow "the theoretic and empirical components of our knowledge of God" to be brought together so that "physical statements and theological statements" might be "intimately correlated."³³ Torrance's views found some favor among other prominent Christian scientists, but Bube took issue with his willingness to blur the lines between science and theology.

For Bube, science had a clearly defined and historically established methodology that provided both a powerful capacity for discovery and clear boundaries for exploration. Similarly, theology stemmed solely from biblical interpretation and the experience born from a personal relationship with God in Jesus Christ. There is no reason to suppose, Bube argued, "that current scientific descriptions have obvious spiritual and theological implications." Permitting such overlap of disciplines risked a "thorough transformation" in which "the God of the Bible is replaced by 'nature.'"³⁴

For the second example, Bube took aim at the emerging ID movement, which he called an attempt at a "grand synthesis of pseudoscience and pseudotheology." He wrote,


Contrary to frequently heard claims, physicists are not telling us that there is an innate 'intelligence' present in each atom of matter. There may well be people saying such things, but they are philosophers who are mistakenly seeking some kind of apparent foundation in science for their own preconceived faith commitments.³⁵

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Bube's criticisms neither ended the calls for "scientific theology" (Alister McGrath later published a series of three books under that title) nor halted the development of ID. Both theories attracted supporters and detractors within and outside the organization over the next two decades. But they nonetheless demonstrated his and the ASA's desire to maintain orthodoxy in both science and theology in a challenging environment. Fifty years from the beginning of the organization, the ASA still had plenty of work to do.

2016: The ASA at 75

So how fares the ASA today? As I write this, plans are underway to commemorate the seventy-fifth anniversary at Azusa Pacific University. Attention will be given to the ASA's past, which is appropriate and helpful since so many of the early issues remain. But as the meeting schedule suggests, the group is clearly not stuck there. Origins, hermeneutics, and science education are on the agenda, yet so are sessions on genetics, physics, environmental science, technology, and, of course, neuroscience—the conference theme. Thus, in this time of polarization over questions of science and faith (as with so much else), the ASA is continuing to do what it has been doing for three quarters of a century—providing room for thoughtful dialogue about issues of connection and contention. 

Notes

- ¹F. Alton Everest to Irwin Moon, March 29, 1941, in the introduction to *Creation and Evolution in the Early American Scientific Affiliation*, ed. Mark A. Kalthoff (New York: Garland Publishing, 1995), xi.
- ²J. W. Haas Jr., "Irwin A. Moon, F. Alton Everest and Will H. Houghton: Early Links between the Moody Bible Institute and the American Scientific Affiliation," *Perspectives on Science and Christian Faith* (hereafter PSCF) 43, no. 4 (1991): 249–58.
- ³See, for example, Adam R. Shapiro, *Trying Biology: The Scopes Trial, Textbooks, and the Antievolution Movement in American Schools* (Chicago, IL: University of Chicago Press, 2013).
- ⁴For more on the founding of the ASA, see Mark A. Kalthoff, "The New Evangelical Engagement with Science: The American Scientific Affiliation, Origin to 1963," PhD diss. (Indiana University, 1998): 158–220; Ronald L. Numbers, *The Creationists: From Scientific Creationism to Intelligent Design, Expanded Edition* (Cambridge, MA: Harvard University Press, 2006), 180–204; D. G. Hart, "The Fundamentalist Origins of the American Scientific Affiliation," PSCF 43, no. 4 (1991): 238–48.
- ⁵F. Alton Everest, ed., "Future of the ASA," *News: The American Scientific Affiliation* 8 (October 6, 1966),

<http://www.asa3.org/ASA/topics/NewsLetter5960s/OCT66.html>.

- ⁶F. Alton Everest, "The American Scientific Affiliation—The First Decade," *Journal of the American Scientific Affiliation* (hereafter JASA) 3, no. 3 (1951): 33–38.
- ⁷Quoted in Martin E. Marty, *Modern American Religion, Volume I: The Irony of It All, 1893–1919* (Chicago, IL: University of Chicago Press, 1986), 42.
- ⁸"The Constitution of the American Scientific Affiliation" as recorded in the chapter titled "The Story of the American Scientific Affiliation," in *Creation and Evolution in the Early American Scientific Affiliation*, ed. Kalthoff, 9.
- ⁹Kalthoff, ed., *Creation and Evolution in the Early American Scientific Affiliation*, xix.
- ¹⁰*Ibid.*, xxx.
- ¹¹F. Alton Everest, *The American Scientific Affiliation: Its Growth and Early Development* (Ipswich, MA: American Scientific Affiliation, 2010), 103–19.
- ¹²Quoted in "High Court Voids Curb on Teaching Evolution Theory," *New York Times*, June 20, 1987, <http://www.nytimes.com/1987/06/20/us/high-court-voids-curb-on-teaching-evolution-theory.html>.
- ¹³J. W. Haas Jr., "The American Scientific Affiliation at 50," PSCF 43, no. 2 (1991), <http://www.asa3.org/ASA/PSCF/1991/PSCF6-91Haas.html>.
- ¹⁴James D. Ebert et al., *Science and Creationism: A View from the National Academy of Sciences* (Washington, DC: National Academies Press, 1984).
- ¹⁵*Ibid.*, 5, 7–8.
- ¹⁶*Ibid.*, 26.
- ¹⁷David Price, John Wiester, and Walter Hearn, *Teaching Science in a Climate of Controversy: A View from the American Scientific Affiliation* (Ipswich, MA: American Scientific Affiliation, 1986).
- ¹⁸*Ibid.*, 8.
- ¹⁹*Ibid.*, 9.
- ²⁰*Ibid.*, 13.
- ²¹*Ibid.*, 42.
- ²²*Ibid.*, 8.
- ²³Constance Holden, "Textbook Controversy Intensifies Nationwide," *Science* 235, no. 4784 (January 1987): 19–21.
- ²⁴William V. Mayer, "Clandestine Science," *The American Biology Teacher* 49, no. 5 (1987): 269.
- ²⁵*Ibid.*, 270.
- ²⁶Francisco J. Ayala, "Evolution and Creation: One Missed Opportunity," *BioScience* 37, no. 7 (1987): 450.
- ²⁷Richard H. Bube, "The Future of the ASA: Challenges and Pitfalls," PSCF 43, no. 4 (1991): 274.
- ²⁸*Ibid.*, 273.
- ²⁹*Ibid.*, 277.
- ³⁰Daniel P. Thurs and Ronald L. Numbers, "Science, Pseudoscience, and Science Falsely So-Called," in *Wrestling with Nature: From Omens to Science*, ed. Peter Harrison, Ronald L. Numbers, and Michael H. Shank (Chicago, IL: University of Chicago Press, 2011), 281–306.
- ³¹Bube, "The Future of the ASA," 276.
- ³²*Ibid.*, 275.
- ³³Thomas F. Torrance, "Newton, Einstein, and Scientific Theology," *Religious Studies* 8, no. 3 (1972): 249.
- ³⁴Richard H. Bube, "Tension in Theology: Creation versus Redemption," JASA 32, no. 1 (1980): 2.
- ³⁵Bube, "The Future of the ASA," 277.

ASA Members: Submit comments and questions on this article at www.asa3.org—FORUMS—PSCF DISCUSSION.



Andrew Kim

Bernard Ramm's Scientific Approach to Theology

Andrew Kim

The year 2016, which marks the 75th anniversary of the American Scientific Affiliation, also marks the 100th anniversary of the birth of Bernard L. Ramm (1916–1992), one of the affiliation's most important figures, and one whose influence among evangelicals in the area of religion and science has been matched by few others. Much of the historical attention given to Ramm has focused on his scientific background and how it influenced his biblical hermeneutic and treatment of scientific topics. However, through use of hitherto unstudied sources, this article will show how his scientific background also conditioned his overarching theological method. By building on ideas rooted in orthodoxy and history, openly accepting new data and evidence into his system, and adjusting his ideas to compensate for changes and developments, Ramm exhibited a scientific methodology that undergirded the development, change, and growth of his theology throughout his career.

As news of the gravitational wave readings at the Laser Interferometer Gravitational-Wave Observatory (LIGO) was publicly announced on February 11, 2016, excitement rippled through the scientific community. The LIGO data supplied evidence for theories of space-time and gravitational waves postulated by Albert Einstein in 1916 and confirmed “Einstein’s theory of gravity, the general theory of relativity, with unprecedented rigor and provide[d] proof positive that black holes exist.”¹

The discovery was a culmination of years of research and technology development and provided the impetus for even more research. Ironically, in 1936, Einstein had doubts about his theories and even submitted a paper retracting his gravitational wave theory. After Einstein had proposed his “correction,” though, an editor discovered an error in the “revised” calculations and confirmed Einstein’s original ideas. Fortunately, the openness inherent in the scientific endeavor rescued Einstein’s theory and allowed for its continued development, which,

in turn, made the recent discovery possible.² In other words, Einstein’s scientific approach not only retained original ideas but also left room for reconsideration, revision, and review, which allowed for further contribution and development.

Born in the same year that Einstein gave birth to his gravitational wave theory was a quiet and unassuming American Baptist theologian named Bernard Ramm (1916–1992). He lived during the heart of the twentieth century, when Christian fundamentalism was at its nadir in engaging with the culture and with science, and his work helped Christians adjust to changes in society as reflected in theology, especially regarding science. As he wrestled with difficult questions, he realized the need to leave room for development and reconsideration, and was willing to adjust his theological stance in the light of new views and information.

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Ramm's significance stemmed from the scientific approach he took in his theological work.³ As a young man who embraced a conservative or even fundamentalist theology, he realized that a dogmatic and inflexible approach inevitably led to conflict with scientific evidence and societal progress.⁴ Over time, he realized that a new theological method was necessary to adequately address the issues. Ramm's method of combining orthodox principles with an evangelical openness created space for him and other Christians to incorporate new evidence and to develop new ideas without abandoning traditional Christian beliefs. This "scientific" methodology allowed him to explore new frontiers, to integrate innovative new ideas, and to reject those ideas that failed to meet rigorous standards.⁵

The purpose of this article will be to demonstrate the scientific methodology of Ramm's theology and to show how his methods created room for other evangelical Christians to think in new ways, particularly in the realm of science, during the twentieth century. To do this, I will make use of a recently discovered, unfinished manuscript by Ramm written shortly before his death, as well as interviews with his children, to illuminate how he utilized a scientific approach to develop his theology. I will also outline his background in science and how it affected his methods, his turn toward evangelicalism as an alternative to liberalism and fundamentalist obscurantism, and a "third way" forward created by the scientific methodology of his subsequent work.

Ramm's Foundations in Science

Ramm was born on August 1, 1916, in Butte, Montana, growing up in an area far from the theological controversies engulfing the centers of theology in Germany and America. His father, a miner, wanted his children to succeed in the business world and moved his family to Seattle near the University of Washington so that his children would be more inclined to attend college.⁶

In high school, Ramm proved to be an excellent student. He was blessed with a photographic memory and had a natural affinity for science.⁷ Time spent with neighborhood friends, some of them professors' children, became a powerful influence, with young Bernard frequently visiting the homes of two friends.⁸ The father of one friend, Alex, was a Russian

immigrant and an engineer, who influenced the two young friends through exciting and fascinating conversations regarding physics and chemistry as well as experiments in electricity and mechanics performed in the garage.⁹ This relationship with Alex's family was highly formative. As he later recalled, "It was due to my association with Alex that I decided to make a career in science."¹⁰

As he approached graduation from high school, he planned on studying chemistry or engineering. Looking back on this time in his life, he described himself as

a typical high school graduate with a mind stocked with what practically all high school graduates have when they leave high school—a profound respect for the sciences, a hope for a newer and better civilization, a toleration and mild respect for religion, a delight in sports and entertainment, and a desire "to make good" in the world.¹¹

What Ramm did not expect, however, was an even more powerful influence that would enter his life when his older brother, John, ushered him toward a more personal experience of Christianity. He had been casually attending church at the suggestion of his mother, when John, a recent convert to Christianity, shared his faith with his younger brother and invited Bernard to attend a summer Bible camp.¹² Referring to himself in the third person, he dramatically described his conversion experience at the camp saying,

Then the gospel came to him. In one three-minute period his entire life perspective and basic personality were changed. He experienced the inflowing grace and transforming power of the grace of God. In a few moments he received a new philosophy, a new theology, a new heart, and a new life.¹³

Ramm entered the University of Washington in 1934 as an engineering major, but a career in engineering no longer captured his imagination. He contemplated a change in major to religion, but his father threatened to not fund his education should he do so.¹⁴ Thus, he completed a degree in engineering as he originally intended, but during breaks from his engineering studies, he continued to study philosophy and theology on his own.¹⁵

The theology books that Ramm obtained, however, he remembered as a mishmash of varying quality, and he soon realized how inadequate were the

foundations that he had absorbed from them. When his introductory psychology professor assigned an evaluation of psychology from an evolutionary perspective, he strongly vilified the evolutionary position using information that he had garnered from his informal theology readings. The professor returned his paper with markings all over it, highlighting the numerous weaknesses in his arguments. Ramm recalled,

My paper eventually was returned with a note in red ink saying that my paper looked as if had been garnered from anti-evolutionary pamphlets. In my ignorance I said to myself "How did he know?" That was exactly what I had done. It occurred to me once and for all, [the weakness of] cheap scholarship in the defense of faith.¹⁶

It was at that point that Ramm began to understand the need for a more learned understanding of the faith. He did not fully abandon his fundamentalist beliefs at that point, but the experience had left a significant impression upon his intellectual self-awareness. A faith built on faulty foundations would no longer suffice for him. From that point, he committed himself to a course of rigorous study that would deepen not only his own theological comprehension but eventually help others in their Christian journeys as well.

Upon graduation in 1938, Ramm decided to forego a career in engineering and entered the BD program at Eastern Baptist Theological Seminary in Philadelphia, a conservative school newly founded by the Northern Baptist Convention.¹⁷ He completed his degree in 1941 while also doing graduate studies at the nearby University of Pennsylvania. During this time, he held an interim pastorate in New York City but soon realized that his gifting was in the arena of academic study and writing.¹⁸

In pursuit of this course, Ramm moved to the West Coast in order to begin graduate studies in philosophy at the University of Southern California (USC).¹⁹ During this time, though, he maintained his interest in science, as his MA (1947) and PhD (1950) were both in the philosophy of science.²⁰ He was also appointed Professor of Biblical Languages at Los Angeles Baptist Theological Seminary in 1943, and in 1944 moved to the Bible Institute of Los Angeles (BIOLA) to become head of the Department of Philosophy and Apologetics.

It was during his PhD studies and while teaching at BIOLA that he finally came to a stark realization regarding his scientific, philosophical, and religious presuppositions. Ramm had been given the task of taking over an apologetics course at BIOLA, but was soon roiled by an internal conflict. He realized that the text he had been using for his apologetics class, authored by fundamentalist Harry Rimmer, was filled with logical and scientific inadequacies that he could no longer overlook.²¹ Rather than instructing students through use of the text, he found himself working harder to defend positions in Rimmer's book that were no longer intellectually tenable. After attempting to communicate with Rimmer about this and receiving no reply, he concluded,

The deeper I got into the philosophy of science the more I recognized the inadequacies of Rimmer's work ... and went on to developing my own ideas. This was the origin of my book, *The Christian View of Science and Scripture*.²²

Through this experience, Ramm comprehended that he needed to abandon the fundamentalist position that he had held for nearly two decades and establish positions that were philosophically substantiated. From his final unpublished manuscript, he reflected on this period of his life:

I became lost in an internal debate going on in which one part of me asked the questions and another part sought for answers. Could I catapult my faith into problem-free territory? An area in which no distressing questions were allowed? ... Was the only defense of the faith pure fideism (by faith alone)? ... I pledged myself to follow the truth in every situation and flee from fideism (a faith which denies the right of questions) ... How can a Christian do otherwise in a modern world that is becoming more sophisticated every day?²³

He had arrived at a place where he could no longer accept a theology that failed to face fair questions, square with logic and philosophy, or fit the data that had been gathered by scientists.

Leaving behind the fundamentalism that limited him, Ramm now sought a realm in which he could explore and experiment with fresh ideas.²⁴ He wrote,

Because evangelical theology represents a minority report in the present theological scene, evangelicals should not be defensive and hostile. The Christian scholar is not only freed from the judgment of God, freed from the tyrannical fear of sin, but also freed

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in his mind in the world of academia where he can be God's free scholar.²⁵

He realized the need to turn toward a novel approach that would keep his ideas grounded in traditional belief, yet simultaneously open his ideas to scrutiny and testing against the difficult questions of the culture in order to examine their validity. Failure to do so could only lead to intellectual isolation and degradation.

His new approach reflected an openness intrinsic to the scientific endeavor, which was rooted in his own scientific background. Reflecting on his process of expanding knowledge, Ramm stated,

Growth in a tradition is exactly this process. To the question, "How could you maintain your evangelical identity through the years?" my answer would be "because I didn't bury myself in it" but grew in it, carefully keeping trace of the pedigree of what was old and what was new.²⁶

By looking to traditional beliefs as a foundation upon which to build, his theological construction was methodical. He concluded that the fundamentalist position alone was not enough, and this forced him into new intellectual frontiers.

Ramm thus realized the need to abandon his former stance in favor of openness to new ideas that would allow him and other Christians to grow in theology and in faith. He left behind a theology that was self-limiting and embraced a method that would allow him to experiment with new ideas. He would therefore need to find an arena that would allow him to do this. It was at this juncture in his life that he began the deliberate move toward a scientifically derived theology supported by fellow evangelicals.

Ramm and Evangelicalism

In the latter half of the 1940s, a new movement began to emerge in America as various fundamentalists acknowledged that some of their number had become overly aggressive, militant, and separatist in relation to other Christians and toward the culture.²⁷ During the early part of the twentieth century, conservative Christians had begun to withdraw from universities, some due to the secularizing effect they perceived and some due to eschatological expectations of Christ's imminent return.²⁸ Because of this, many fundamentalists had disengaged from the culture and active evangelism.

Members of the new movement, by contrast, sought to engage society rather than separate from it.²⁹ Supporters of this neo-evangelical movement called themselves simply "evangelicals" and came from all denominations, as evidenced by the diversity of members involved in the formation of the National Association of Evangelicals (NAE) in 1942, which drew from across the American Protestant spectrum.³⁰ These evangelicals sought to express their faith through adherence to orthodox belief, intimate re-engagement with the culture, and active evangelism.³¹ The rapid growth of the NAE in the mid-1900s reflected the popularity of the evangelical movement across longstanding, traditional denominational lines.

Despite the diverse draw of the evangelical movement and the focus on active evangelism, the two largest Baptist groups, the Southern Baptist Convention (SBC) and the American Baptist Churches (ABC-USA), the latter of which Ramm was a member, never joined the NAE. Reasons for the ABC-USA not joining the NAE are not completely clear, but individual Baptists were still free to interact with evangelicals, and the young theologian took advantage of the opportunity in the early 1950s.³² The evangelical movement offered believers of different backgrounds the chance to engage with other conservative Christians and provided the space to explore new ideas without fear of being labeled as "liberal" by the Christian community.

This interaction invigorated Ramm, and, though remaining faithfully tied to the ABC-USA, he began to identify himself as an evangelical. He wrote:

The evangelical believes in growth within a tradition ... [It is a mistake if] they think that their only alternatives are to stay in the theological rut of their early fundamentalism and stagnate or jump to some recent non-evangelical theology and keep in the center of the modern theological action ... Evangelicals believe that they have a stable theology stemming from a stable tradition, but it is not the essence of evangelical theology not to grow within the bounds of its theological tradition.³³

Thus, he became a voice that called other Christians to actively think, write, believe, and grow under conditions that would promote progress and test ideas in a fair-minded manner.

Ramm accused those opposed to such openness of "obscurantism," a willful ignorance and deliberate

rejection of inquiry into the truth and of refusal to accept responsible criticism of ideas. He wrote,

With the maturing of science in the nineteenth and twentieth centuries, evangelicalism was faced with a battery of questions. Most disturbing were the developments in geology and biology.... The standard position of fundamentalism ... was to deny the truthfulness of these theories in the name of inspired Scripture.³⁴

By seeking to “protect” the Bible and antiquated theology, fundamentalists became “obscurantists.”

In contrast, he again demonstrated the scientific quality of his work in that he stretched his theology to encompass new knowledge to see whether biblical and theological claims to truth were valid. He was no longer willing to hide behind dogmatic statements or blind himself to evidence of any kind that was available to Christians. For Ramm it was, in fact, the Christian’s responsibility to continually work without rejecting basic tenets of belief, to gather more evidence, and to reconsider positions as needed. This was what the evangelical position offered him the freedom to do, and this formed the basis of his approach for the rest of his career, especially when it came to science. Because of his attitude, evangelicals were better equipped to keep pace with the rapid scientific changes that began to occur in America in the 1950s and beyond.

Ramm’s Scientific Approach to Religion and Science

In taking a scientific approach to his theology, he was inevitably drawn toward the issues surrounding the relationship between religion and science. He was keenly aware of the challenges that modern scientific discoveries in support of evolution placed before believers, and the ethical dilemmas brought about by fields such as genetics and computer technology. Without hesitation, Ramm squarely faced the issues, confident that a robust theology could not only meet the challenges, but also benefit from them and grow stronger. Believing that religious liberalism ventured too far in one direction by abandoning biblical foundations and that “hyperorthodoxy” (his term for fundamentalism) went too far in the other direction by enclosing itself in biblical literalism, “we defend a position which asserts that a positive relationship must exist between science and Christianity.”³⁵ In other words, evangelicals could side neither with

the hyperorthodox, who rejected science, nor with the religious liberals, who rejected core tenets of the Bible. For Ramm, “true evangelicalism, as distinct from fundamentalism, must represent a third alternative” of intellectual engagement with science.³⁶

The main thrust of his 1954 text, *The Christian View of Science and Scripture*, was to do exactly this: without putting aside the Bible or dismissing evolution, consider how religion and science might work as companions. The legacy of the text was to introduce Christians, particularly those interested in science, to new ways of thinking about the Bible and how the Bible and science might inform one another. In the introduction to *The Christian View of Science and Scripture*, Ramm wrote,

There has been and is a noble tradition in Bible and science, and this is the tradition of the great and learned evangelical Christians who have been patient, genuine, and kind and who have taken great care to learn the facts of science and Scripture ... It is our wish to call evangelicalism back to the noble tradition.³⁷

After outlining a philosophical framework for the harmony between science and scripture, he systematically laid out the causes of the apparent conflict, reasons for rejecting such conflicts, and scientific evidence to support such proposed harmony. His use of sound logic and the most up-to-date evidence (as of 1954) helped give many Christians a “third alternative” and a way forward.

What made his work significant, though, was that his efforts did not stop with this text. Instead, he was continually willing to consider other views and modify his own. There was no “one third way” for Ramm—it was a willingness to explore and dynamically respond to the developments that science continued to bring. Theologian Alan Day described this process by saying, “Ramm’s scientifically trained mind has enabled him to view science and scientists without the naïve suspicion characteristic of some of his contemporaries”; his understanding of science freed him of commitments that might imprison his thinking.³⁸

In his final manuscript, he reflected upon his career, writing,

This experience [of renouncing confining commitments] set my policy for handling all problems connected with the evangelical faith. It cut off at

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this time any refuge in an artificial land free from icy blasts: i.e., from anti-intellectualism and obscurantism.³⁹

In other words, he was committed to exploration and inquiry in search of a better and richer theology that engaged directly with the relationship between science and religion.

For example, Ramm even looked beyond Baptist or Protestant practices to learn from approaches to science and religion taken by Roman Catholics. In his 1954 article "The Catholic Approach to Bible and Science," he analyzed the history of the Roman Catholic Church in response to previous encounters with science and how it reacted to the issue of evolution. He noted the changes in various Catholic encyclicals that gave Catholics the freedom to consider and study evolution without necessarily being committed to it as a doctrine. Almost with a tinge of envy, Ramm said,

It is possible (if the case of the Roman Catholic Church be an analogue) to permit many concessions to geology and evolutionary biology, and still not disrupt a rather rigid dogmatic theology. The word *evolution* is still a very controversial word among evangelicals, but has lost almost all its emotive force as far as Catholics are concerned ... In general Catholic scholars are given far more liberty of interpretation in matters of Biblical criticism and science than is accorded scholars in evangelical and fundamental circles in Protestantism.⁴⁰

This showed him that there were other people engaged in thinking about the subject of science and religion in ways that were beyond partisanship or emotion, and that such freedom was available to him and other Christians.

A significant event in Ramm's career provides additional evidence of the fact that he was not locked into one way of thinking. In 1957, he seized the opportunity to spend his sabbatical year studying theology with Karl Barth in Basel, Switzerland.⁴¹ During this year of study, he found that the interpretations of Barth's theology that he had been taught as a young seminary student were flawed. Instead, upon meeting Barth in person, he realized that he had found "a genius with imagination, who was able to see relationships obscure to others."⁴² Although he had some reservations about certain aspects of Barth's theological system, he believed that Barth could help evangelicals in multiple ways.⁴³

Many fundamentalists with whom Ramm had kept company for many years criticized him for his embracing of neo-orthodoxy, but he would not be deterred. He spent his year in Basel reading Barth's theology and gathering with other English speakers for weekly group discussions in Barth's home. He was also able to engage Barth in personal conversations throughout the week. He concluded, "With genius ability Barth has restated the old faith, the historic Christian theology, in a way that is believable for modern man."⁴⁴

Ramm was able to converse with Barth about many topics, including science and religion. He recalled from his time in Switzerland, "Barth suggested that 'if we truly believed that we had the truth of God in Holy Scripture we should be fearless in opening any door or any window in the pursuit of our theological craft.'"⁴⁵

In his 1986 reflection upon his time in Basel, he said that Barth personally encouraged him to evaluate his theology from different angles, including his reflections on science. Ramm wrote:

I saw in rapid succession on the parade ground in my mind the futility and intellectual bankruptcy of my former strategy and the wonderful freeing strategy of Barth's theological method. I could be just as free a person in theology as I would be if I were an experimental scientist. With the full persuasion of the truth of God in Holy Scripture I could fearlessly read, study, and listen to all options and opinions in theology.⁴⁶

These developments gave him the ability to venture into new directions and come to new conclusions that would not have been available to him had he retained his original approach. Although he did not know it at the time, his willingness to take academic risks enabled him to experience a cross-fertilization of new ideas that enriched his own thought. Offering an analysis of this boldness, theologian Clark Pinnock wrote of his colleague,

A major example of his openness to change occurred with the publication of *After Fundamentalism* in 1983, when for the first time Ramm publicly declared Barth to be the paradigm for evangelicals to follow in their efforts to come to grips with the challenge of the Enlightenment ... Considering who Ramm is and what faith community he is part of, this step constituted a major symbolic move and illustrates his fearlessness and flexibility.⁴⁷

Taking Pinnock's analysis a bit further, it was not just fearlessness or flexibility on Ramm's part, but also a commitment to explore new ways of thinking that potentially unlocked new ideas and solutions.

After returning from his year of study in Basel, he began to rapidly publish a series of articles on science and theology, both in the *Journal of the American Scientific Affiliation (JASA)* and in *Eternity* magazine. Ramm, beginning in the late 1940s, had already initiated what physics professor Joseph Spradley called a "long and fruitful relationship with the American Scientific Affiliation," which would continue throughout his career.⁴⁸ In *JASA*, Ramm wrote on topics such as theological reactions to the theory of evolution (1963), the relationship between science and inerrancy (1969), humanity's interaction with technology (1971), death (1973), the ethics of biogenetic engineering (1974), and a scientific view of the issues of sin and evil (1975).⁴⁹ In *Eternity*, he wrote about science and theology (1965), the epistemological questions of science as knowledge (1966), the ethical dilemmas of prolonging life (1976), and the potential abuses of amniocentesis (1976).⁵⁰ It is clear that the interaction between science and religion was never a forgotten topic during his time in academia and that his mind continued to seek new ways of understanding contemporary cultural phenomena.

Ramm was no blind optimist, though; he knew that knotty theological topics would not be answered without facing difficulties. Just as a scientist toils at the bench and encounters drawbacks as well as his or her own limitations, Ramm was keenly aware that some problems would remain in any theological system that he favored. He wrote,

A person may unload his evangelical faith for either some philosophy or theology [but] there is no philosophy or theology without its problems ... One has to decide which problems he chooses to live with.⁵¹

As he taught his theology and apologetics students over the years, he always reminded them of this fact. "I have admonished students that if they seem overburdened with problems in their theology," he wrote near the end of his life, "there is no recourse to a system of thought without its problems. The cloudless beatific vision of truth is not for this world ... To this day I have on hold some of my problems with the Christian faith."⁵²

Despite these difficulties, Ramm, in good scientific fashion, continued to move forward throughout his career in his quest to find solutions with the hope that even if he were unable to formulate answers, future colleagues would be able to. Just as the scientific enterprise continues to build its base of knowledge, he believed that theology could do the same. He mused,

In theological studies one should not prematurely judge that a disturbing question or problem has no solution. Granted, there is a fine line between dodging an issue and patiently waiting for a solution. Aware of this, nevertheless I have maintained that a problem that at the present seems impossible to resolve may yet be resolved in the future. And in many instances this has been my own experience.⁵³

In other words, while he saw himself as a theologian engaged in the task of developing theoretical models that sufficiently answered problems, he also saw himself as part of a larger community that was similarly laboring; he believed that his work would combine with that of others and eventually lead to answers.

In his research, Ramm continued to explore other fields in the hope that additional questions, along with data from other academic arenas, would help to inform his own. He stated,

Contemporary philosophy, contemporary theology, and contemporary science may be very unfriendly to evangelical theology. They seem to be opening all sorts of doors and windows to let in soul-chilling drafts of air. But ... the Word of God in our hearts should drive out fear—fear of an unexpected discovery in science or archeology or psychology or sociology. Not that in each instance evangelicals should rise up and refute the distressing charge. Christians are in this for the long haul, and vexing problems of today may well be resolved by tomorrow.⁵⁴

This approach to his work again reflected his scientific view of the theologian's task, in that the theological community, working together just as the scientific community does, would be able to engage, research, and ultimately provide solutions for difficult religious questions.

Thus, the actions taken and methods employed amply demonstrated that Ramm had a clear and

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deep respect for those who came before him, for those who thought differently from him, and for those whose work helped to expand the field of theology, as well as for the scholarly conversation and development generated by engagement with all three groups. This, in its essence, is the scientific method: interacting with prior data, collaborating with others in the field, integrating and synthesizing useful information from other fields, and working gradually and respectfully toward answers to both new and lingering questions. Ramm's great contribution was to apply this method to theology in ways that not only aided his own work but also helped support the work and faith of many Christians.

Conclusion

In an article written in honor of Ramm's retirement and published in *JASA*, Spradley wrote of the changes he observed in Ramm's approach to Christianity and science. He not only praised him for taking on challenges for evangelical scientists, but also noted his continued active support of scientists as a whole. Summarizing his career, Spradley declared:


The relationship between theologian Bernard Ramm and the ASA for more than forty years has helped to shape much of evangelical thinking about Biblical interpretation related to science ... Perhaps more than any other evangelical theologian in the United States, he has maintained an interest in science and has influenced evangelical scientists by his Christian thinking about science and scripture ... It was evident he was always testing and developing his ideas. This development is reflected in his changing views of science and religion ... [which] over the years have matched the growing needs of evangelicals involved in science.⁵⁵

This physicist took note of Ramm's scientific and methodical approach to the topic of science and religion, and praised him for working to build a broader theological foundation that could help evangelicals embrace science.

Spradley's analysis, however, requires further extension, for Ramm not only applied scientific principles to his biblical hermeneutic but also to his overarching theological method. He did not shy away from theological difficulties by hiding behind obscurantism, but rather adjusted his theology in a way that allowed both himself and other evangelicals the

opportunity to explore and embrace new possibilities for growth and new avenues of thought. Within the reflections on his life's work in his final manuscript, it is clear that Ramm evidenced a distinct scientific approach to his theology throughout his career. Because of this, there is much to appreciate and to learn from the systematic methodology of his work.

It is fitting that as the American Scientific Affiliation celebrates the 75th year of its existence, it also celebrates the 100th year of Ramm's birth. By the time he retired from academia in the 1980s, his career had spanned almost forty-five years, and he had written more than twenty-seven books and penned hundreds of articles. In his interactions with the ASA, he had presented at numerous annual meetings, and served as a contributing editor with *JASA* for almost twenty years.⁵⁶ His colleagues lauded him for his work in helping Christians in practical ways through his theology and through his work on religion and science, all while maintaining a humble and irenic spirit. His work with the ASA was appreciated such that his ASA colleagues honored him with a separate Festschrift detailing his contributions and help to the many Christians who found direction through his work.⁵⁷

From his initial interests in science as a youth, Ramm formed the basis of a powerful and effective methodology that united theology with a scientific approach. This method helped him to study and explore the many difficult ethical and theological issues facing Christians in the twentieth century. Unlike some conservatives, he did not resist the changes brought about by modernism, but instead embraced the opportunity and sought to develop paradigms that could provide new answers. His scientific tactics allowed him to cultivate and test theological ideas that accorded with reality. He confronted a modern scientific world with modern scientific methods, and, in so doing, helped evangelical Christians find their way through the challenges of modernity and avoid the pitfalls of obscurantism. In a twenty-first-century world in which religion and science continue in a contentious relationship even in evangelical circles, Ramm's ability to maintain his theological center while engaging science is a model still worth emulating. 

Notes

- ¹Adrian Cho, "Gravitational waves, Einstein's Ripples in Spacetime, Spotted for First Time," *Science*, last modified February 11, 2016, http://www.sciencemag.org/news/2016/02/gravitational-waves-einstein-s-ripples-spacetime-spotted-first-time?utm_campaign=email-news-weekly&et rid=17153613&et cid=273077.
- ²*Ibid.*
- ³In texts outlining key theologians of the twentieth century, Ramm is often cited along with his importance to the evangelical movement. For two examples, see Kevin J. Vanhoozer, "Bernard Ramm," in *Handbook of Evangelical Theologians*, ed. Walter A. Elwell (Grand Rapids, MI: Baker, 1993), 290–306; and Stanley J. Grenz and Roger E. Olson, *20th-Century Theology: God and the World in a Transitional Age* (Downers Grove, IL: InterVarsity Press, 1992), 297–309. Vanhoozer refers to Ramm as a "John the Baptist [who] pointed to Christ and prepared a way for evangelical theology to go forward" (p. 306), while Olson, a former student of Ramm's at Bethel Seminary, says Ramm "provided the foundation for a generation of younger evangelical thinkers who would build on the freedom to think critically and engage in positive dialog with modern culture." Both cite Ramm's work on scientific topics, but this paper will examine the scientific quality of Ramm's theological methods.
- ⁴Bernard Ramm, "The Making of an Evangelical Mind" (unpublished and undated manuscript), PDF file. Used by permission of the Ramm family. This unfinished manuscript was written during the two years prior to Ramm's death in 1992 and includes recollections about and reflections upon various incidents during his career and life. Because it is unedited, quotes from the manuscript have been edited for spelling and punctuation.
- ⁵The term "scientific" is placed in quotes this one time in order to clarify what is meant by the term in regard to Ramm's work. Although his theology cannot be tested empirically or repetitively in a laboratory, the scientific quality of formulating ideas, testing them, incorporating new data, and revising theories based on new data is what will be applied to Ramm's theology in this article.
- ⁶*Ibid.*, 5.
- ⁷Elizabeth (Ramm) Attig, in interview with author, January–February 2015.
- ⁸Ramm, "The Making of an Evangelical Mind," 6.
- ⁹*Ibid.*, 7, 8.
- ¹⁰*Ibid.*, 8.
- ¹¹The Ramm family provided the author with a copy of a single typewritten page recounting Ramm's own conversion testimony. There is no date as to when Ramm created this document. Ramm included a portion of this conversion account in Bernard Ramm, *Protestant Christian Evidences: A Textbook of the Evidences of the Truthfulness of the Christian Faith for Conservative Protestants* (Chicago, IL: Moody Press, 1954), 220. Because it is untitled, I will refer to this document as "Conversion Testimony" in future footnotes.
- ¹²Stephen Ramm, in interview with author, June 2015.
- ¹³Ramm, "Conversion Testimony" (no publisher, no date). Used by permission of the Ramm family. Also in Ramm, *Protestant Christian Evidences*, 220–21.
- ¹⁴Stephen Ramm, in interview with author, June 2015. Ramm was also a gifted athlete and could have funded his own education through a college athletic scholarship, until it was discovered in his senior year of high school that he suffered from an enlarged heart and could no longer safely engage in strenuous physical activity or sports.
- ¹⁵Ramm, "The Making of an Evangelical Mind," 10.
- ¹⁶*Ibid.*, 11.
- ¹⁷The Northern Baptist Convention changed its name to the American Baptist Convention in 1950, and then again to the American Baptist Churches in the USA (ABC-USA) in 1972. For the purposes of this article, ABC or ABC-USA will be used. In the first half of the twentieth century, the ABC acknowledged the conservative members in the denomination through the establishment of three seminaries, one of which was Eastern Baptist Theological Seminary, where Ramm went to seminary. For a description of Eastern Baptist Theological Seminary, in comparison to other ABC seminaries, see Robert G. Torbet, *A History of the Baptists* (Valley Forge, PA: Judson Press, 1978), 433. Torbet describes the conservative and fundamentalist reaction to what was perceived as a liberal trend in the denomination, and the creation of more conservative institutions for orthodox teaching and education of ABC members.
- ¹⁸Note that Ramm published twenty-seven books and over two hundred articles during his career. While he also held interim pastorates later in Seattle, Washington, and in Glendale, California, eventually Ramm dedicated himself fully to his academic career.
- ¹⁹Ramm was able to study during this period since he was exempt from military duty, due to his heart condition. Stephen Ramm, in interview with author, June 2015.
- ²⁰Ramm's combination of religion, philosophy, and science are seen in his master's thesis, "The Idealism of Jeans and Eddington in Modern Physical Theory" (1947), and PhD dissertation, "An Investigation of Some Recent Efforts to Justify Metaphysical Statements Derived from Science with Special Reference to Physics" (1950), both at the University of Southern California.
- ²¹A detailed description of Rimmer's career as a fundamentalist who worked to dismiss the claims of evolution can be found in Ronald Numbers, *The Creationists* (New York: Random House, 1992), 60–71. It is not clear which book Ramm used, but Numbers lists several anti-evolutionary texts written by Rimmer (Note 22, 368) that might have been used.
- ²²Ramm, "The Making of an Evangelical Mind," 23. An additional biographical account of Rimmer's life and work can be found in the introduction to Harry Rimmer, *The Antievolution Pamphlets of Harry Rimmer*, ed. Edward B. Davis (New York: Garland Publishers, 1995), ix–xxviii. Davis's account of Ramm's letter to Rimmer can be found on p. xxi. The immense positive influence of Ramm's book on the evangelical community should be noted and is recorded through an interview by Walter R. Hearn, "An Interview with Bernard Ramm and Alta Ramm," *Journal of the American Scientific Affiliation* 31, no. 4 (1979): 179–86.
- ²³Ramm, "The Making of an Evangelical Mind," 23–24.
- ²⁴Olson, "Bernard Ramm" in *20th-Century Theology*, 308–9.
- ²⁵Ramm, "The Making of an Evangelical Mind," 66.
- ²⁶*Ibid.*, 2.
- ²⁷The dating of the emergence of neo-evangelicalism is based on the founding of the National Association of Evangelicals (NAE). Use of the term "fundamentalist" (spelled with a lower case "f") is to speak broadly of those who claimed to adhere to the five fundamentals (inerrancy, virgin birth, substitutionary atonement, bodily resurrection, and visible return of Jesus) as well as those who identified with the teachings included in the multivolume *The*

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Fundamentals: A Testimony to the Truth, vols. 1–7, (Chicago, IL: Testimony Publishing Company, 1910), published by the Stewart brothers between 1910 and 1915. A subset of this group became militantly separatist regarding other Christians and the broader American culture.

²⁸For a detailed description of this movement away from the culture, see Matthew Avery Sutton's *American Apocalypse: A History of Modern Evangelicalism* (Cambridge, MA: Belknap Press of Harvard University Press, 2014).

²⁹A lengthy treatise on American Fundamentalism can be found in George Marsden, *Fundamentalism and American Culture: The Shaping of Twentieth-Century Evangelicalism: 1870–1925* (New York: Oxford University Press, 1980) and ____, *Understanding Fundamentalism and Evangelicalism* (Grand Rapids, MI: Eerdmans, 1991), as well as in Matthew Avery Sutton, *American Apocalypse: A History of Modern Evangelicalism* (Cambridge, MA: Belknap Press of Harvard University Press, 2014), which describes Fundamentalist withdrawal and separatism versus evangelical engagement with the culture.

³⁰Using their own term of self-identification, “evangelical” will be used to describe those in the neo-evangelical movement, though they should be distinguished from the broader evangelical movement, which historians have traced back for several centuries in Western Christianity. For an example of the broader evangelical movement in the English-speaking world, see the 5-volume series *A History of Evangelicalism: People, Movements and Ideas in the English-Speaking World*, ed. David W. Bebbington and Mark A. Noll (Downers Grove, IL: InterVarsity Press, 2005, 2007, 2010, 2013, not yet published). Marsden's text *Understanding Fundamentalism and Evangelicalism* distinguishes between the two, pointing out characteristics of each.

³¹One example of many histories attempting to trace the neo-evangelical movement can be found in George Marsden, ed., *Evangelicalism and Modern America* (Grand Rapids, MI: Eerdmans, 1984).

³²A forthcoming dissertation by the author on Bernard Ramm and his role in bringing evangelical ideas into the ABC, “A Critical Biography of Bernard Ramm: An Exemplar of the Development of an Evangelical Baptist Identity in the American Baptist Convention,” will include a discussion of the NAE and the reasons for ABC nonmembership.

³³Bernard Ramm, *The Evangelical Heritage* (Waco, TX: Word Books, 1973), 128–29. Though this book was published in 1973, Ramm reflects on the evangelical positions that he began to embrace during the 1950s and 1960s.

³⁴Ramm, “The Making of an Evangelical Mind,” 22.

³⁵Ibid., 33. In Walter Hearn's interview, Ramm reveals that “hyperorthodox” is Ramm's term for fundamentalists. Walter Hearn, “An Interview with Bernard Ramm and Alta Ramm,” 182.

³⁶Ramm as quoted in R. Albert Mohler, “Bernard Ramm: Karl Barth and the Future of American Evangelicalism,” in *Perspectives on Theology in the Contemporary World: Essays in Honor of Bernard Ramm*, ed. Stanley J. Grenz (Macon, GA: Mercer University Press, 1990), 31.

³⁷Bernard Ramm, *The Christian View of Science and Scripture* (Grand Rapids, MI: Eerdmans, 1954), 9–10.

³⁸Alan Day, “Bernard L. Ramm,” in *Baptist Theologians*, ed. David S. Dockery and Timothy F. George (Nashville, TN: Broadman, 1990), 588–605.

³⁹Ramm, “The Making of an Evangelical Mind,” 24.

⁴⁰Bernard Ramm, “The Catholic Approach to Bible and Science,” *Bibliotheca Sacra* 111, no. 443 (1954): 212. Italics original.

⁴¹Bernard Ramm, *After Fundamentalism: The Future of Evangelical Theology* (San Francisco, CA: Harper & Row, 1982), 10.

⁴²Clark H. Pinnock, “Bernard Ramm: Postfundamentalist Coming to Terms with Modernity,” in *Perspectives on Theology in the Contemporary World*, ed. Grenz, 17.

⁴³Ramm notes his encounter with Karl Barth in many of his articles and books, such as *The Evangelical Heritage* and *After Fundamentalism*, and detailing them here would be cumbersome. It is sufficient to say that Ramm deeply respected and appreciated the time he spent with Barth as well as the ways in which he believed that Barth opened intellectual avenues of exploration.

⁴⁴Ramm, *The Evangelical Heritage*, 109.

⁴⁵Bernard Ramm, “Helps from Karl Barth,” in *How Karl Barth Changed My Mind*, ed. Donald K. McKim (Grand Rapids, MI: Eerdmans, 1986), 121.

⁴⁶Ramm, “Helps from Karl Barth,” 121.

⁴⁷Clark H. Pinnock, “Bernard Ramm: Postfundamentalist Coming to Terms with Modernity,” *Perspectives in Religious Studies* 17, no. 4 (1990): 17.

⁴⁸Joseph L. Spradley, “Changing Views of Science and Scripture: Bernard Ramm and the ASA,” *Perspectives on Science and Christian Faith* 44, no. 1 (1992): 2.

⁴⁹See Bernard Ramm, “Theological Reactions to the Theory of Evolution,” *Journal of the American Scientific Affiliation* 15, no. 3 (1963): 71–77; ____, “The Relationship of Science, Factual Statements and the Doctrine of Biblical Inerrancy,” *Journal of the American Scientific Affiliation* 21, no. 4 (1969): 98–124; ____, “Evangelical Theology and Technological Shock,” *Journal of the American Scientific Affiliation* 23, no. 2 (1971): 52–56; ____, “A Christian Definition of Death,” *Journal of the American Scientific Affiliation* 25, no. 2 (1973): 56–60; ____, “An Ethical Evaluation of Biogenetic Engineering,” *Journal of the American Scientific Affiliation* 26, no. 4 (1974): 137–43; and ____, “Evil and/or Sin Inherently Irrational,” *Journal of the American Scientific Affiliation* 27, no. 4 (1975): 172.

⁵⁰Bernard Ramm, “Science vs. Theology: The Battle Isn't Over Yet,” *Eternity* 16 (October 1965): 16–20; ____, “Is Science Knowledge?” *Eternity* 17 (June 1966): 35–36; ____, “Is Keeping People Alive Unethical?” *Eternity* 27 (February 1976): 44; and ____, “Amniocentesis—Its Potential Abuse,” *Eternity* 27 (April 1976): 47–48.

⁵¹Ramm, “The Making of an Evangelical Mind,” 2.

⁵²Ibid., 44.

⁵³Ibid., 47.

⁵⁴Ibid., 65.

⁵⁵Spradley, “Changing Views of Science and Scripture: Bernard Ramm and the ASA,” 2.

⁵⁶Ibid.

⁵⁷The December 1979 issue of the *Journal of the American Scientific Affiliation* contained a Festschrift dedicated to Bernard Ramm.

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D. Gareth Jones

The Changing Face of the Science-Faith Dialogue in a Biomedical Arena

D. Gareth Jones

The contribution of the ASA to science-faith discussions is indicated in part by the degree to which it has facilitated openness and dialogue between those of dissenting points of view. In doing this, it has provided numerous opportunities for the contribution of scientific thinking and perspectives in debates at the interface of biblical and scientific territories. However, attention in the science-faith area is frequently dominated by evolutionary and allied philosophical questions, with little attention paid to the biomedical domain; this problem arises because scientific input is frequently slender at best, suggesting that bioethics is peripheral to mainline science-faith discussions. By reference to my own experiences and drawing on a range of publications in JASA and PSCF, I argue that the ASA has contributed immensely over many years in spite of the contentious nature of some of the conflicts. I draw attention to the need for flexibility, open-mindedness, and humility when confronted by the moral ambiguity so often encountered in bioethical decision making. I also argue that science has a crucial role to play in these discussions placing them within the mainstream of science-faith dialogue. However, what stands out is the centrality of specific situations, with their demand for in-depth scientific analysis and for determining what might best serve the needs and welfare of human patients.

A society's journal provides a glimpse into its interests and concerns. With this in mind I have gone through issues of *Perspectives on Science and Christian Faith* (PSCF) and its predecessor, *Journal of the American Scientific Affiliation* (JASA), over the period 1949–2015, to examine the prominence of bioethical issues. The first evidence of an article that I would class as examining bioethical issues appeared in 1962, on birth control. Two other articles appeared in the remainder of the 1960s, on medical practice and control of our genetic future. This mirrors the relative lack of interest in bioethical issues more widely. This began to change in 1970 with a major article from the Christian Medical Society outlining a Protestant affirmation on the control of human reproduction, along with four responses. Taking 1970 as a starting point, sixty-six articles on bioethical concerns (excluding articles

on environmental ethics, homosexuality, and those on neuroscience and psychology) have appeared. This amounts to a little less than one bioethics article for every three issues. What is interesting is that the number of articles has remained remarkably constant over this period, suggesting there has been little in the way of an increase in interest over recent years, despite the burgeoning of interest in society.

However, these comments have immediately to be balanced by reference to some

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of the notable contributions made by ASA members over this period. Among Richard Bube's many contributions to the journal there were ones specifically on bioethical topics, including ethical guidelines, abortion, euthanasia, the biological control of human life, and the slippery slope in bioethical debate.¹ James Peterson's contributions have included articles on what we owe to future generations, and the ethics of altered nuclear transfer.² However, his major contribution is to be found in his books, *Genetic Turning Points*³ and *Changing Human Nature*.⁴ Other topics have included the future of medical science,⁵ ethical issues in high technology medicine,⁶ the repository for germinal choice,⁷ recombinant DNA,⁸ embryonic stem cells,⁹ and genetics and virtue ethics.¹⁰ Theologians such as Bernard Ramm and Carl Henry presented their ideas in the early years: Ramm on a Christian definition of death and biogenetic engineering,¹¹ while Henry provided a perspective on Christianity and medical frontiers.¹²

My own bioethical contributions in the journal have covered a range of fields from abortion to the reproductive technologies, from nonexistence to contemporary medical scandals, and from genetic issues to biomedical manipulation and how we can cope with our disagreements over bioethical dilemmas.¹³ I have been grateful for the manner in which the journal and its editors have supported these forays into bioethics. They have recognized that, while the ongoing debates over evolutionary origins have been obstacles to harmonious existence within many Christian communities, there have been equally disruptive debates within biomedicine. Of these, abortion stands out as a trigger for dissension, but it has not generally been recognized as a science-faith issue, since little attention has been paid to its scientific component.

This lack of attention to the contribution that science can and should make to these discussions has had profound implications for the way in which many Christians contribute (or fail to contribute) to these biomedical topics. My starting point has consistently been the presupposition that scripture is seminal in unravelling the many moral conflicts at the beginning of human life. Alongside this has been the realization that there has to be serious analysis of the increasing array of technologies involved. Any Christian contribution lies in balancing relevant scriptural precepts with the implications of the technological interven-

tions, seeking wisdom and the guidance of the Holy Spirit as to how each is to inform the other.

Implicit within this approach is dependence upon a detailed knowledge of the science, alongside an understanding of nuanced theological insights. It is not enough for bioethicists or theologians to rely upon cursory scientific generalizations, any more than they would rely upon the perfunctory ethical or theological input of amateurs. If science is to be taken seriously, as I consider it should be, care is required to take note of the thrust of the latest science, especially its reliability and the varying interpretations that may exist within the scientific community.

In what follows I probe a little more deeply into two particular illustrations of the support I have received from *JASA/PSCF*. While these are discussed in personal terms, they throw light onto the broader challenges experienced by Christians in coming to terms with bioethical debate, challenges to which I return in the later sections.

"Making New Men"

In 1974 I embarked on an assessment of the biological revolution as I, and others, saw it then.¹⁴ From the perspective of the twenty-first century, there is much that seems quaint, quite apart from use of the terms "men" and "man" rather than "humans" and "people." The ethical analysis is also rudimentary. Nevertheless, it marked a tentative beginning into a relatively uncharted area for Christians, whether theologians or scientists. However, Paul Ramsey had done important theological work in the 1960s and 1970s¹⁵ and Donald Mackay was beginning to cast his penetrating scientific eye over some of the issues.¹⁶ Other evangelical contributors in the late 1960s and 1970s were thin on the ground and concentrated on birth control and abortion¹⁷ or were concerned with any postulated eugenic potential.¹⁸

In my 1974 article in *JASA*, I contended that Christians should be preparing themselves and their communities to meet the future, since the developments then underway were raising both practical and theoretical challenges due to the increasing control they foreshadowed over human life. I was convinced that if theology was to be relevant, it had to encompass what were generally regarded as secular issues, such as prenatal manipulation, including *in vitro* fertilization (IVF) and prenatal adoption, the

production of chimeras, genetic engineering, preventive genetic medicine, cloning, organ transplantation, brain research, and mood-controlling drugs. These possibilities were all beginning to be contemplated in the early 1970s, and I argued that Christian scholars should have been actively engaging with them. But little was happening. While much has changed over subsequent years, these and other biomedical innovations have transformed the expectations of everyone, bringing with them a medley of theological repercussions.

In publishing articles along these lines in the early 1970s, the ASA was playing an important role in acquainting Christians and their communities with critical dimensions of the new world into which we were all moving. At the time, they were not regarded as particularly controversial, since they were looking ahead to what was on the horizon, and they may have appeared more akin to science fiction than to rapidly approaching scientific reality.

This is well illustrated by one of the topics addressed in that article, IVF. In 1974 it was still at the experimental stage, and, for most people, of little more than futuristic interest. At the time, I commented on the apparently formidable gap between Aldous Huxley's novel *Brave New World* and the experimental embryological work then underway. For me, this was an illusory gap, since once it had proved possible to interfere with the future stages of human development outside the body and in the laboratory, the far more dramatic developments in human patients would be accomplished, given time.

This turned out to be correct just four years later, in 1978, when the first child born using IVF entered the world to much fanfare, acrimony, and dubious acclaim.¹⁹ This did not require any great perspicacity on my part, only sufficient interest in the area and a reasonable knowledge of reproductive biology. At the time, I was prepared to accept the legitimacy of IVF as a technological approach for Christians suffering infertility on the ground that God has given humans responsibility for exerting authority over themselves and their environment. Implicit within this stance was an awareness and acceptance of the high degree of manipulation over human reproduction that IVF and procedures that might stem from it in the future would entail. I was aware of the potential dangers and sought to identify limits that would have to be taken into account from a Christian angle.

In outlining what I described as "a theology of modified man," I highlighted what I regarded as essential parameters requiring attention. These were the inevitability that research in the biomedical areas would continue, with substantial impact on human existence and expectations, leading to change in our lives and in notions of human freedom. This entailed examining what might constitute the "ideal" human being, and what might lead to the dehumanization of people. In view of these developments, I turned to the role of human beings as vice-regents for God, the relevance of this for the manner in which we approach these new challenges, and the significance of the stance that ultimate control lies with God alone.

The tenor of the paper expressed my openness to developments in these biomedical areas, an openness that can be put down to my commitment to scientific investigations.²⁰ As a biomedical scientist, I was not averse to these explorations, although the context in which I assessed them emanated from my Christian commitment and my ultimate dependence upon God and his purposes. In viewing humans as those who image God, I was prepared to recognize their God-given power and ability to transform his creation. Over against this was the countervailing recognition that humans rebel against God and misuse their freedom and capabilities to the detriment of each other and the community.

At the time, the apparently academic tenor of this debate with its futuristic overtones elicited little response. However, all was to change in the mid-1980s, when the issues began to be seen as engulfing all and sundry inside the Christian community as much as outside it. If nothing else, this demonstrated that the ASA, through its journal, was ahead of its time in delineating a realm that was to become of intense interest and relevance to Christians of many stripes—those with infertility problems through to theologians and policy makers. And the ASA would provide an outlet for airing some of these controversies and enabling discussions to occur.

Censorship and Controversy

"At 5:00 a.m. on Wednesday, 6 June 1984, my world was changed." These are the opening words of my article "The View from a Censored Corner" on the withdrawal from publication in the United States of my book *Brave New People*.²¹ The point in raising this

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incident in the present article is not to recapitulate all the claims and counterclaims of that feverish time, nor to pass judgment on any of the parties involved, but to acknowledge the role of the ASA in being prepared to provide space in its journal in which to discuss the issues. Further issues were elaborated on in more general terms in a subsequent article in *PSCF*, "Coping with Controversy: Conflict, Censorship and Freedom within Evangelicalism."²²

While this incident is, in some respects, of no more than historic interest (after all, it occurred over thirty years ago), it continues to resonate in both bioethical and scientific circles. This is particularly so within Christian communities, since it draws attention to the manner in which Christians cope with the intersections between science and faith, and between technological possibilities and biblical revelation. These interstices are found in numerous realms, but are of special poignancy in biomedical areas since they touch on immediate human concerns. Will the technology enable me to have a child? Will it enable me to have a disease-free child? How do I balance the good of having a child against the destruction of embryos? What will be the consequences of genetic knowledge for other children in my family or for my siblings? Am I playing God and taking too much control into my hands? Am I lacking trust in the goodness and mercy of God when I seek technological answers to fertility and congenital problems? Comparable questions and concerns emerge in all the other biomedical areas through to the end-stages of our lives as human beings.

Unfortunately, they are the stuff of deeply divisive debates within Christian circles, on account of the apparent challenges they pose for biblical revelation.²³ It is essential that scientists enter the picture, and yet for scientists who are Christians this is also troubling territory. It is far easier for scientists to confine themselves to the boundaries of their disciplines and expertise, where they can function as good practitioners, subject only to the legitimate controversies of their discipline. As Christians, they can function just like anyone else within their Christian communities, and not attempt to bring their scientific expertise to bear on theological and ethical dilemmas. By functioning with this two-compartment model, they remain immune from biblical and doctrinal controversies, but neither are they in a position to utilize their scientific expertise (biomedical expertise, in this

instance) to assist fellow Christians seeking guidance when confronted by deeply conflicting human decisions in their own lives or in the lives of their loved ones. How is the church to learn and how are ministers to fulfil their pastoral duties, if those with the appropriate scientific knowledge remain silent or are not listened to?

My stance has been to involve myself in the muddy waters of biomedical ethical conflict as a Christian scientist, recognizing that I may on occasion be wrong and that conclusions I reach may not be useful or faithful to the two "revelations" (science and scripture). It is here that the ASA is crucial as I and others attempt to listen to both sets of input. This accords with ASA's position on controversial issues:

As an organization, the ASA does not take a position when there is honest disagreement among Christians on an issue. We are committed to providing an open forum where controversies can be discussed without fear of unjust condemnation. We believe that this is a necessary environment for any process of arriving at truth and understanding.²⁴

In *Brave New People*, the focus of my attention was IVF, artificial insemination, cloning, amniocentesis, genetic counseling, and the whole technological environment responsible for these developments. These were little-explored topics within Christian circles in 1984, and I sought to rectify this for a general Christian readership. Unfortunately, I touched on the topic of abortion in a chapter on "therapeutic abortion," taking what to my mind was a fairly protectionist position, although not an absolute one, when it came to the embryo. In some quarters, that was unacceptable, and there was no room for such views within evangelical circles.²⁵

What was interesting then, and continues to be of interest today, is that practically no attention was paid to the predominant thrust of the book, namely, the reproductive and allied technologies. These were the ones where my scientific expertise was being brought to bear, and yet they were ignored. As one surveys the scene today, abortion continues to be as fraught as ever, and while there have been varying degrees of opposition to the reproductive technologies by some theologians and Christian ethicists,²⁶ in practice, many Christians accept the benefits that these technologies bring. In other words, the technologies have been largely accepted and ones in the pipeline will probably be as well. Whether these

responses are thoroughly grounded in nuanced theological and scientific considerations is a moot point. Ongoing serious analyses informed by careful theological reflection are as important as ever.

In my 1985 and 1988 articles, I discussed a variety of issues that I saw as arising from the debate over *Brave New People*. I argued that a temptation to which evangelicals are prone when discussing ethical issues is to think that generalizations can suffice in the real world.²⁷ I suggested that evangelicalism remains very uneasy about technology,²⁸ not all technology but certain forms of it. One gets the impression that some technologies are accepted while others are rejected. At that time, I referred to genetic engineering, IVF, and artificial insemination as falling into the suspect category. That list has undergone modification in the intervening years, as some procedures have drifted into acceptance while other suspect ones have arisen to fill their places—notably so-called three-parent embryos/babies (mitochondrial replacement therapy), germ line modification, derivation and use of embryonic stem cells, animal-human hybrid embryos, the use of fetal tissue in research and therapy, and all forms of cloning.²⁹ This is not to suggest that all such procedures should be employed or even accepted, but blanket rejection of these and equally ready acceptance of procedures such as induced pluripotent stem cells,³⁰ shows a lack of scientific sophistication, let alone stringent ethical analysis.

In my 1988 article, I also asked if there is a legitimate place within evangelicalism for those who are professionally trained in areas other than theology, and capable of honest exploration of these other realms, whether in science, medicine, economics, or politics. I wrote: “Without such interdisciplinary exploration, the response of evangelicals will owe more to conservative attitudes than to serious biblically informed assessment.”³¹ Silencing the contribution of scientists marks the death knell of serious engagement with contemporary culture and practice; here, and in marked contrast, the ASA comes to the fore. In the absence of publishing outlets like those provided by the ASA, God’s kingdom on Earth is diminished.

The contribution of scientists to debates like this will only occur when it is generally accepted that mutual interdependence is not an optional extra for Christian communities, but is fundamental to their integrity.³² With this in place it becomes possible to have healthy

debates over complex ethical issues, something that one expects to find in a publication like *PSCF*. This can be done when we believe in intellectual freedom on the grounds that the person redeemed by Christ has been set free and liberated by the gospel, allied to which is an acknowledgment that all truth is God’s truth.³³ These are high expectations, and from time to time we all fall short, but the role of a Christian community is to pick each other up and to encourage each other to persevere in the name of Christ, even when we disagree with them.³⁴

Flexibility, Open-Mindedness, and Humility

How do my reflections relate to the major themes identified by Christopher Rios,³⁵ that is, the centrality of the findings of mainstream and authentic science, the insistence on neutrality stemming from open-mindedness about controversial issues, and an unwillingness to blur the lines between science and theology?³⁶

While these themes emerged predominantly in connection with evolutionary discussions, they are surprisingly apt for biomedical issues. These themes raise their own sets of queries. If Christians in the sciences are to function as exemplary scientists, can they also function as exemplary Christians (in the sense that their beliefs are faithful to the biblical revelation), or will one have to give way to the other? What is the biblical revelation and what if it appears to be in opposition to what the best science is claiming? Obviously, constructive dialogue becomes essential, and with it, a willingness to listen to the viewpoint of the other. This appears to be the basis of the *Four Views on ...* cadre of books, the value of which lies in providing opportunities to respond to those with a differing viewpoint, thereby setting up a conversation. I am not in a position to know to what extent people’s perspectives shift in light of these conversations, but at least there are serious attempts to bridge what, on occasion, give the impression of being unbridgeable gaps.

Any such attempts at speaking across well-recognized divides necessitates *flexibility*. The difficulty with this notion is that it reeks of compromise. For instance, flexibility over the embryo or abortion may be viewed as equivalent to the situation ethics of Joseph Fletcher with its flexible, case-by-case approach.³⁷ For Fletcher, the central driving force of

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situation ethics was love—with people placed before principles and the rightness of actions judged in relation to the situation in which they take place.³⁸ It is a form of consequentialism, paying no attention to the nature of the act or what moral significance it may have. Were this approach adopted today, it would see no drawbacks in any biomedical technology nor in the extent to which technological procedures are to be employed.³⁹

Taking account of the situation in which people find themselves when facing major ethical decisions is not akin to this old form of situation ethics. People live in community and exist in particular family and social contexts. This approach might best be described as “context ethics,” since no two contexts are identical.⁴⁰ Consequently, two Christian families facing similar situations may respond in different ways to the possibilities opening up before them—and yet both are faithful in their Christian walk.

Flexibility in turn demands *open-mindedness*, another of the virtues stressed by Rios.⁴¹ This, too, can be misinterpreted to imply vagueness, and an unwillingness to be committed to strict rules. However, no scientific input will follow strict rules, but will seek new evidence and new ways of better describing what it encounters. Hence, if a rules-based approach is adopted and is regarded as foundational, there will be conflict. As far as the ASA is concerned, open-mindedness is a *sine qua non*, an approach from which it would be detrimental to resile. This equates with humility and a willingness to accept that none of us has all the answers in very uncertain and unexplored territories.⁴²

Bube’s position on maintaining the distinction between science and theology has enormous attraction from a scientist’s perspective.⁴³ Once this is lost, it becomes difficult to recognize where science begins and ends, and where theology begins and ends. This is not to argue for an impregnable barrier between the two, but for mutual respect for the domains of each. Neither does this lead to a position whereby each is unfettered. The notion of complementarity, so effectively set forth in the 1960s by Donald MacKay,⁴⁴ and stemming from the earlier work of C. A. Coulson,⁴⁵ needs to be revisited. Working from concepts in physics, MacKay argued that scientific and Christian descriptions complement rather than contradict one another. Both are needed in that they bring their complementary perspectives to bear

on reality. Each has to be justified in its own terms, and neither should stray into the territory of the other. Hence, while each listens to the other, and is prepared to learn from the other, it recognizes the limitations and extent of its own domain. In arriving at a view of the world, the scientist is to be prepared to make use of theological concepts, while the theologian is to be prepared to make use of scientific insights. At no point does the scientist assume, or reject, a theological mantle; neither does the theologian assume, or reject, a scientific mantle. While this notion was developed in the physical sciences, it has the potential to be elaborated in the biomedical sciences. Here it would be expected to take account of the input of patients and their families, their social context, and their view of the world, as well as that of clinicians and scientists, and biblical data.

The ASA statement of faith has four planks.⁴⁶ Two of these are especially relevant for my context: acceptance of “the divine inspiration, trustworthiness and authority of the Bible in matters of faith and conduct”; and recognition of “responsibility, as stewards of God’s creation, to use science and technology for the good of humanity and the whole world.” The latter encourages scientific exploration within the biomedical realm, with the proviso that it has the potential to benefit humanity. This opens the way to the use of technology in the service of individuals and their communities, necessitating serious ethical analysis as to how this will be provided. The challenge for Christians is to determine the principles and values to be employed in arriving at these decisions. Apart from the generally used basic ethical values commonly encountered in bioethical analyses—respect for autonomy, beneficence, nonmaleficence, and justice⁴⁷—plus others often taken into account such as respect for persons, human dignity, and truthfulness and honesty, where does “the authority of the Bible in matters of faith and conduct” enter the picture?

I have often struggled to know how best to interpret this statement when confronted by dilemmas raised by developments in contemporary biomedical technology. While the values of secular bioethics are generally helpful, they make no claim to be derived from scripture. They are not antithetical to scripture, but they omit reference to spiritual realities and throw no light on Christ-centered directives. The authority of scripture may well lie in commands such as “do not kill” and “do not steal,” but these

are generalizations that underlie the ethical values of most within bioethics, and that themselves require interpretation in specific contemporary contexts. Further, they are not Christ-centered and fail to take account of Jesus's directive, "to love one's neighbor as oneself" (Mark 12:31). Note that here, the contribution of theological ethicists becomes central. Let me take as examples the writings of three of them: Allen Verhey, Neil Messer, and James Peterson.

Verhey looks to scripture with the proviso that scripture is always to be read humbly.⁴⁸ No single scholar or church tradition has all the answers on a host of bioethical quandaries. Decision making on many bioethical issues moves into far less definitive territory than that suggested by any simple "right" or "wrong" responses: in most ethical conflicts, a solution lies somewhere between the extremes. This is illustrated by how Paul approached the eating of food offered to idols, an activity that was not always right or always wrong. Pro-eating or pro-abstaining would have divided the Christians in these communities into two irreconcilable camps, but this is not what Paul advised (1 Cor. 8:1-13).

Christians should avoid any hint of arrogance by which they know unerringly that their interpretation of specific bioethical dilemmas is the correct one. Christians are to take seriously the context provided by the Christian community in which together we strive to interpret scripture in faithful ways, even when there are divergences of opinion on complex matters. The situations in which people find themselves are also to be viewed with deep seriousness, not in order to diminish scriptural input but to ensure that it supports people in their need. By all means, suggest ways forward; by all means, suggest the path or paths that appear to be most compatible with scriptural norms and the clinical/scientific evidence. But this approach is far removed from pontificating that this or that is *the* Christian way when faced with decisions regarding infertility; facing congenital anomalies in an embryo, fetus, or child; or continued use of chemotherapy in a terminal clinical situation.

In considering what he describes as the strange world of sickness in scripture, Verhey argues that our remembering Jesus and his attitudes will dispose us toward a number of crucial attitudes of our own: respect for the embodied integrity of people, for their freedom and identity, the need to nurture community, and to support and care for and—if

feasible—cure the sick.⁴⁹ On the other hand, he also stresses that our powers are far from being messianic. Hence, we are not to have extravagant expectations of any human power, including medical powers, and they are never to be idolatrous.⁵⁰ Herein lies a crucial balance, the midpoint between realistic expectation in what technology can achieve and in overexpectation that it will solve all humanity's problems. This balance pinpoints the boundary that Christians will always seek to draw between temporal and eschatological hope.

This counterbalance emanates from the "not yet" character of our life and also of medicine. Consequently, there is uncertainty in this realm, and with uncertainty comes moral ambiguity as good ends come into conflict, not only with evil ends but also with different sets of good ends. From Verhey's perspective, "The memory of Jesus does not provide any neat and easy resolution to such conflict. It does not usher in a new heaven and a new earth, either. Here and now there is ambiguity."⁵¹ This is the realism inherent within any serious Christian appraisal of bioethical dilemmas. Neat solutions are enticing (A is always correct; B is always incorrect), but when the value and aspirations of one sick individual are pitted against the value and aspirations of another individual, difficult choices follow.⁵²

Messer has sought to unpack Verhey's general directions with a series of what he describes as diagnostic questions.⁵³ Is the project good news to the poor, the powerless, those who are oppressed or marginalized in any way? Is it a way of acting that conforms to the *imago dei*, or is it an attempt to be "like God"? What attitude does it manifest toward the material world (including our own bodies)? What attitude does it manifest toward past human failures? What attitude does the project embody toward our neighbors?⁵⁴ For Messer, love of neighbor is a central theme in Christian ethics, and he seeks to apply this to a wide variety of groups, including embryos.

Peterson pays considerable attention to the validity of technology used in biomedicine, paying particular attention to genetic issues.⁵⁵ He displays far greater openness than many Christian commentators to the good that may be accomplished by human intervention. For him, "shaping the world is part of the God-given mandate for human beings to share in the redemption and development of creation."⁵⁶ While others may regard this as leading to pride,

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Peterson recognizes the dangers of sloth and disobedient apathy in neglecting the possibilities opened up by technological developments. In discussing genetic ventures, he de-emphasizes the physical side reminding us that, for instance, “day care workers have more impact on future generations than geneticists.”⁵⁷ Such an approach means that he is far less concerned about the risks of such genetic intervention to (potentially) eradicate conditions such as Down syndrome or cystic fibrosis and even forms of enhancement, than are many Christian writers. Underlying this openness is the potential it could bring to enable people to follow more worthy goals. While far from assured, it points to the centrality of Christian imperatives in directing all technological ventures to the glory of God and the benefit of others. Peterson writes: “Genes create terrain, not destiny. A good genetic start does not guarantee a good outcome; it just makes such more likely.”⁵⁸

For me, as for Peterson, the Bible provides guidance that will assist those who wish to act as Christ’s followers in the contentious and highly problematic world of modern medicine.⁵⁹ Acknowledgment that biblical guidance is at a general level does not devalue it. But it does leave a great deal to the judgment and discernment of individuals and communities, and yet this is what we should expect for those who have been redeemed by Christ and walk by the power of the Holy Spirit. It also throws the onus onto church communities to act as supportive communities for those in their midst. This is not the world of rules and regulations, even though themes and directions are to be searched for in scripture as they are in every other area of life.

Science-Faith Dialogue in Biomedicine

Science-faith dialogue should not be confined to the large questions raised by evolutionary debate or by the physical sciences. While in no way demeaning or underestimating their importance, they are to be complemented by recognizing the science-faith dimension of conflicts in biomedical areas. When this is done, scientific input is seen to be essential: strictly speaking, this is the interface between technology, ethics, and faith.

My approach to ethical issues is that of a scientist working within a Christian frame of reference. This leads to an examination of the available evidence,

regardless of whether this comes from the science, the technology being used, or scripture. The dimensions of the specific situation are to be examined with a view to determining what might best serve the needs and welfare of human patients. The biomedical context dwells on specific situations and instances. These go beyond recognizing God’s presence and character in such generalities as the beauty, awe, and wonder of the creation, no matter how valid those considerations may be.⁶⁰

Biomedical endeavors are inseparable from specifics demanding precise answers and directives. Seeing God in medicine or healing is ambiguous, since we are let down when healing does not come, when there is no cure, and when the patient dies. Consequently, there is no escape from a suffering God rather than a triumphant God. By all means, utilize appropriate scientific expertise, and yet this will not make humans immortal. At some point, they and we will die. Where then is God in this journey of what may be interpreted as inevitable decline? He does not offer endless life as mortals, and those who seek it in technology—through transhumanism, the creation of cyborgs, the potential of cryopreservation, or the production of a cognitively enhanced species—will be let down.⁶¹ Technology per se has no answer to decline and death, no matter how much life expectancy is increased, increases that the Christian faith should have no desire to minimize.

The challenge for Christians is neither to decry nor eulogize technological advances, but to put them in perspective. A Christian paradigm faces up to the inevitability of suffering and mortality, not in a fatalistic way, but by seeking to be faithful to Christ in the midst of suffering; to care for the vulnerable.⁶² When confronted by suffering and uncertainty, the Christian is to examine the technology available and the manner in which it might be used to assist in this situation. What will bring glory to God? How best can I respond as a follower of Christ?


Technology will not provide an answer, but neither is it an enemy. It is a tool to be employed in the service of Christ. For medical scientists, this is an encouragement to excel at research, both fundamental and applied. In uncovering more secrets of the human body, its wonder and intricacy, its complexity and regenerative powers, scientists are cooperating with God in understanding his creation. In helping to conquer and quell the ravages of disease, they

are bringing control and order to that which is disordered and destructive. In helping to increase life expectancy and the quality of that life, they are giving opportunities to those who would otherwise lack them, especially to those in the majority of the world where life expectancy remains low. Those of faith in these societies are thus enabled to appreciate God far better and worship him all the more. Scientists, in principle, are enhancing the beauty of human life and the depth of human community and are providing a foundation for people to be educated and provided with a far richer quality of life. In these ways, biomedical scientists are laying a foundation for the enhancement of faith.

When confronted by the possibilities opened up by a dramatic new field like regenerative medicine, theologians are on occasion apt to decry this as a threat to God and to all that we hold dear.⁶³ Humans, it is claimed, are accruing excessive power that may transform them and lead to a biological Armageddon. These are fears that have surfaced repeatedly over the years in relation to cloning, genetic engineering, and the reproductive technologies.⁶⁴ All too often, however, they have lacked an informed scientific base and have proved unhelpful and misleading. If they had been accompanied by a scientific analysis of the state of the science, the theological discussion could have been far more profitable and accurate. This in no way overlooks the fallibility or limitations of scientific analyses, but it introduces an evidence-based approach as one would expect from scientists.

The biomedical area is ripe for investigation as an integral feature of the science/technology-faith domain. We are diminished to the extent that we relegate it to a category of its own in which science is seen to play a negligible role. Christian scientists can be encouraged to take an active part in this world, and to devote their energies to increasing our understanding of the body in its many dimensions, and in alleviating suffering and loss on the part of humans like ourselves. The realization that we are living in an imperfect world with its "not yet" character should constrain our pretensions and idealism,⁶⁵ but, conversely, it does not militate against the contribution that scientists make to better the world and human beings within it. This, in itself, is a rich outcome of the role of science as a gift from God, and encapsulates the place that the ASA has, and will continue to

have, in advocating for the role of Christians in this God-given endeavor.

This article also serves as a plea to ASA and its members to give greater attention to bioethics, and to revive the Bioethics Commission as one means to this end. 

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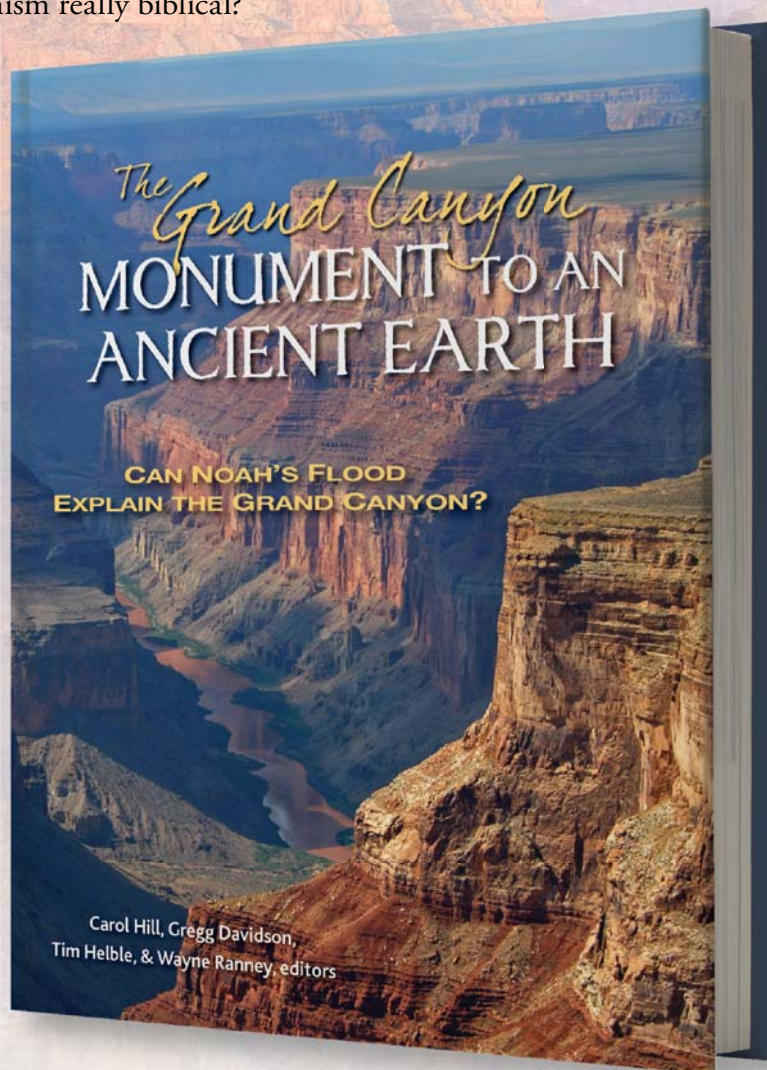
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Terry M. Gray

The ASA Does Not Take an Official Position on Controversial Questions

Terry M. Gray

In 1971, Richard H. Bube, editor of the Journal of the American Scientific Affiliation (JASA), wrote in an article entitled “We Believe in Creation” that “ASA does not take an official position on controversial questions.” In a 1969 editorial comment, he wrote, “It is not the function of the journal to propagate a crusade for any particular interpretation ...” This neutrality position not only covered origins questions but all manner of topics, including the definition of biblical inerrancy. F. Alton Everest’s 1951 survey of the first ten years of the ASA and JASA editor Delbert N. Eggenberger’s 1956 editorial show that this attitude was part of the ASA’s DNA from the beginning. ASA has resisted efforts to become a group advocating a particular position, leaving such advocacy to others. More recently, the “no official position” viewpoint received some nuance with Randy Isaac’s tenure as executive director and his interaction with young-earth creationism (YEC), intelligent design (ID), and climate science.

Richard H. Bube wrote in 1971 in the *Journal of the American Scientific Affiliation (JASA)* that “ASA does not take an official position on controversial questions.”¹ This claim was in an article entitled “We Believe in Creation,” arguably one of the most significant papers ever published in *JASA*. He argued that “creation” as a theological topic was not controversial and that he had no “hesitancy in affirming, ‘We believe in creation,’ for every ASA member.” Bube explained that as scientific topics, however, fiat creationism—now more commonly called young-earth creationism (YEC)—and biological evolution and old-earth geology/cosmology were controversial questions for which ASA had no official position. There were ASA members with each of these viewpoints, and ASA as an organization was not an advocate for any one of them.

In many ways this “neutrality doctrine” is unique to the ASA as a Christian organization and as a scientific organization. In the Statement of Faith, ASA members

commit to the Bible, to the Christian faith (as stated in the Apostles’ and Nicene Creeds), to the practice (with integrity) of science, and to the use of science and technology for the good of others.² Further detail on each plank is neither spelled out nor required of members, and thus there is a wide diversity of views represented by the membership—in ASA publications and in meeting presentations. This distinguishes the ASA from other faith/science organizations in which particular positions are advocated: YEC (Creation Research Society, Institute for Creation Research, Answers in Genesis), old-earth creationism (Reasons to Believe), intelligent design (Discovery Institute), or evolutionary creation (BioLogos Foundation). Such diversity also distinguishes ASA from many Christian

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denominations and para-church groups, given that many of these groups often have much more detailed statements of faith.

One of the more interesting consequences of this neutrality doctrine is that failure to advocate for a particular position is often seen as advocacy for the opposite position. In the early days of the organization, some members felt that because ASA did not take a YEC stance that it was becoming an advocate of theistic evolution (TE). Others thought that in not narrowly defining the inerrancy of scripture it had become theologically liberal. This perception is perhaps a natural outgrowth of the neutrality doctrine. Those who are uncompromising on a particular issue cannot tolerate those who are more open minded. Thus, they leave the ASA (or become less active), and the alternative position seems to become more prevalent. For the ASA, this is mere perception. Those committed to certain (usually more conservative³) views can still belong and participate. ASA promotes a respectful engagement and dialogue among those who hold to the Christian faith in some way and who are interested in the questions of science.

How Early in the Life of the ASA Did This Neutrality Position Appear?

A simple review of the projects and discussions of the first decade suggests an openness to a variety of views since the beginning of the ASA.

One of the first ASA projects was the writing of what ultimately became *Modern Science and Christian Faith*.⁴ Already evident in the ASA was the value of thoroughly discussing difficulties and not necessarily promoting a particular point of view. In "An Outline of the Aims and Purposes of the Christian Students' Science Handbook," a brochure calling for papers for this book, Irving Cowperthwaite wrote:

It is felt that such a frank airing of both sides of the question will appeal to the student and will receive a consideration when other more sensational approaches will not. Students are intelligent and fully capable of arriving at constructive conclusions if full data are presented. The dangerous, insidious conviction is that based on an incomplete knowledge of the problem.

The statements and representations of the SCIENCE HANDBOOK must be accurate in every detail. They must be able to meet the scrutiny of men unfriendly

to the cause of Christ and rise unscathed. Error or misrepresentations of science would seriously impair the usefulness of the book.⁵

Although clearly antievolutionary, *Modern Science and Christian Faith* was honestly presenting then-current scientific views on the geological ages, radiometric dating, fossil hominids, and anthropological research, despite strong support among some in the ASA for the YEC position and very strong support for the antievolution position.

In the Preface to *Modern Science and Christian Faith*, F. Alton Everest wrote,

The main function of the American Scientific Affiliation is to survey, study, and to present possible solutions. Ideas expressed in this book must not, therefore, be construed as representing the official view of the group. (p. vi)

In these earliest years (late 1940s, early 1950s), physical chemist/geochemist J. Laurence Kulp kept ASA members up-to-date on developments in radiometric dating and how this new technique significantly reinforced the arguments for an old earth. Kulp's views generated much debate.⁶ While some members seemed eager to adopt the tenets of YEC, ASA as an organization allowed the debate to continue and did not take a position on this controversial topic.⁷

The "no official position" viewpoint was thoroughly vetted in the early years. While president of the ASA Executive Council in 1976, Claude E. Stipe wrote an editorial for *JASA* entitled "Does the ASA Take a 'Position' on Controversial Issues?"⁸ Stipe was responding to complaints that ASA had become a theistic evolutionist organization. He denied it and sought to prove it by rehearsing the history of the ASA, particularly with respect to the question of its taking sides. He documented this view from ASA literature and correspondence. Some of these quotes are repeated below, but the reader is invited to consult Stipe's article for a more complete set. Everest also reflected on this question and assembled a collection of quotes from *JASA* in "What Is the 'Position' of the ASA?" in *The American Scientific Affiliation: Its Growth and Early Development*.⁹

Everest's 1951 survey of the first ten years of the ASA shows that this attitude was part of the ASA's DNA from the beginning.

... For what purpose does the ASA exist? ... we consider it distinctly improper for the ASA to

become so enamored by particular interpretations of these accounts that we shift our efforts from study to propaganda. Dr. Allan A. MacRae, prominent archaeologist and past Vice-President and member of the Executive Council of the ASA has wisely put it this way:

To my mind it would be unfortunate for the Affiliation to go on record strongly in favor of any one of the various views ...

... Thus in the *Journal of the ASA* you will find a paper supporting a particular interpretation and a little later another one apparently demolishing it.¹⁰

In this same review of the first decade of the ASA, Everest expresses how fortunate the early ASA was to be relatively ignorant of other faith/science groups that seemed to have a stronger predilection toward the YEC view. ASA's founders were able to consider a range of views.

In 1955, ASA President H. Harold Hartzler opened a joint meeting of the ASA and the Evangelical Theological Society with an address explaining the history and purposes of the ASA, saying,

I should state here and now that the ASA does not have any official policy on any scientific matter. After all, scientific theories come and go. They are seasonal. What is good science today may not be good science tomorrow.¹¹

The issue continued to raise its head with *JASA* editor Delbert N. Eggenberger's 1956 editorial comments explaining the neutrality position:

Since a part of the objective is to examine fields of science relating to Scripture, it is emphasized that there is *not* a uniform or official ASA interpretation. The only bounds we have are the inerrancy of the original Scriptures. To publish only articles [from a] particular theological system would defeat the very purpose for which the Affiliation was founded.

... It is doubtful that a clear-thinking individual is produced by avoiding thorny topics.

Articles and columns are presented over the authors' names and are to be considered their presentations and should not be construed as ASA policy. It is not uncommon for the Editor to strongly disagree [with] some points in the papers he selects for publication.¹²

And again in 1959:

It would be easy to establish a "party line" in accepted scientific theory and in theology to which any accepted paper must adhere ...

The Editor, however, believes that the ASA has a purpose, and can thus best fulfill a needed function, of open-minded study that precludes such restrictions ...

It is his (Editor's) belief that a primary function of the ASA is to allow free discussion. It should be a medium for producing new thought, new approaches, new solutions to some old problems concerning science and Christianity.¹³

The need to keep responding to a questioning of this position is evidence that not all agreed. An explicit statement of disagreement came from William Tinkle in 1959:

The ASA has conducted a good open forum but such a method is limited in its scope of usefulness. We ought to settle some principles, then go out and make converts among other scientists. We have no united, forceful campaign to correct the mistakes of scientists which have lessened faith in the Bible. Some members even seem willing to admit that there may be mistakes.¹⁴

Tinkle acted on his desire to have some settled principles by being part of the group that founded the Creation Research Society, a group committed to YEC, in 1963.¹⁵

In *After the Monkey Trial*, Christopher M. Rios recounts an incident in the 1960s concerning the book *The Encounter between Christianity and Science* that also suggests that not everyone was on board with the principle.¹⁶ In 1961, Bube had been tasked with preparing a volume similar to *Modern Science and Christian Faith* to be published by the ASA. When the work was done, it was deemed too controversial by the ASA publications board under the leadership of Russell Maatman and was not published. (It was published a few years later by an outside publisher.) Maatman argued against the book's publication on the basis of neutrality: he feared that the author's views would be taken as the ASA's views. This seems to be a shift. In the past, the neutrality principle was used to allow the expression of controversial and progressive ideas under the author's name only (vs. the ASA as an organization). Now it was being used to block them. Bube's view eventually prevailed as described in the next section.

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The “no official position” perspective in the ASA is evident on issues other than the age of the earth and evolution. Early on, it was apparent that the ASA was not going to adopt a particular view of the early chapters of Genesis. All the major views of the days of Genesis had their adherents among ASA members. The anthropology article in *Modern Science and Christian Faith* surveyed the major options on Adam and Eve, and these are still being considered today.¹⁷

Richard H. Bube, Controversialist

Bube, who served on the ASA Executive Council from 1964–1968 and then as *JASA* editor from 1969–1983, extended the “no official position” debate to include the very definition of biblical inerrancy.

In 1963, Bube presented a paper entitled “A Perspective on Scriptural Inerrancy” in which he distinguished between “arbitrary inerrancy” and “revelational inerrancy.” Those who accept the principle of arbitrary inerrancy believe that “the scriptures are considered to be verbally inspired, inerrant, and infallible in an arbitrarily absolute sense as factual information,” whereas those who accept the principle of revelational inerrancy believe that “the Scriptures are indeed verbally inspired, inerrant, and infallible as a *revelation* of God by himself to men.”¹⁸ The key distinction is that the Bible may contain “errors,” as in mistaken opinions about the natural world held by the original human authors and the original audience, as long as these are not central to the revelatory purpose of the Bible. Bube is quick to say, “This by no means implies that there are ‘errors’ of fact in the Bible, but rather that the criteria for judging fact are often either uncertain or irrelevant to the revelational purpose of the Bible.”¹⁹

Bube’s view of biblical inerrancy was in conflict with many fundamentalists and evangelicals, and it incurred the wrath of inerrantist Harold Lindsell in his 1976 *The Battle for the Bible*. Bube is said to have “become an articulate spokesman in support of biblical errancy.” Lindsell writes, “The American Scientific Affiliation and the Evangelical Theological Society have in them people who do not believe that the Bible is free from all error in the whole and in the part.”²⁰

In one of his first acts as editor of *JASA*, Bube approved for publication and defended Paul H.

Seely’s “The Three-Storied Universe.”²¹ According to Seely, the Bible assumes, erroneously, that the universe is three-storied, but we do not believe that Christians are bound to give assent to such a cosmology, since the purpose of the Bible is to give redemptive, not scientific truth.²²

There were critical responses to Seely’s article by R. Laird Harris, “The Typical Modernistic View of Scripture,”²³ and Robert C. Newman, “Infallible Inspiration Taught by Scripture Itself,”²⁴ with a response by Seely.²⁵ Editor Bube entered the fray, drawing upon the neutrality principle as a defense:

... It is not the function of the *Journal* to propagate a crusade for any particular interpretation of many questions in which science and Christian faith are mutually involved. Any article, judged to be consistent with the Constitutionally stated purposes and doctrine of the ASA and to exhibit sound scholarship in respect to factual basis and exercise of interpretation, is acceptable for publication in the *Journal*. If an author is guilty of gross scientific or exegetical error, we are confident that readers will quickly set the record straight, thereby increasing general understanding of the truth. Given Dr. Harris’ strong convictions, exactly what is needed is an “answer” to Mr. Seely’s “exegesis in detail.”²⁶

Two years later Bube published “We Believe in Creation” (mentioned above) drawing explicitly on the neutrality principle.

Bube, ever the controversialist, tackled other issues, often challenging what might be considered the traditional Christian position. Sexual ethics,²⁷ homosexuality,²⁸ birth control and other reproductive technologies,²⁹ abortion,³⁰ euthanasia,³¹ and energy, nuclear energy, the environment, and stewardship³² all were subjects of his editorial pen. With Bube at the helm, *JASA* was an open forum where Christians could explore all these subjects that touched on science and faith.

Critical responses were also published. Duane Gish wrote a letter to the editor, “An Open Letter of Protest,” complaining about Bube’s statements on homosexuality and YEC.³³ Notably, Editor Bube responded with a full affirmation of the neutrality principle:

We have frequently pointed out that the ASA does not take positions on controversial issues,

and the inside cover of the *Journal* always carries the statement that articles published in the *Journal* should not and cannot be taken to represent the position of the ASA. The reason for this policy is that the ASA exists as an open forum to discuss the interface of science and Christian faith within the context of a commitment to biblical Christianity and to authentic science. In other organizations it may well be that the word of the publication must conform in every respect to the official pronouncements of the hierarchy, and that therefore the word of the publication can be taken to represent the official position of the organization. This is not true of the *Journal ASA*, never has been true, and as far as I am able to affect it, will not be true in the future.

We shall continue ... to maintain that which is also clearly stated on the inside front cover of the *Journal ASA*,

Open discussion of all issues is encouraged in the expectation that the pursuit of truth can only be enhanced by exposure to conscientious and honest inquiry.³⁴

In the early years, the call for the ASA to advocate for a particular position came most frequently from those arguing against an old earth, evolutionary biology, human evolution, and approaches to scripture that would accommodate these scientific conclusions. In refusing to do so, the ASA became a haven for Christians adopting nontraditional views. Some have taken this to mean that the ASA had become theologically liberal, had adopted theistic evolution, and promoted the latest progressive social ethic. But we must resist this interpretation of the neutrality principle. ASA takes no official position on these controversial matters. Everest noted that Henry Morris and Duane Gish, both founding members of the Creation Research Society, a YEC organization, continued to be members of ASA until 1980 and 1978, respectively, many years after they founded the Creation Research Society.³⁵ As late as 1971, Gish defended a YEC position in the pages of *JASA*.³⁶

In August 2000, a five-member subcommittee of the ASA Commission on Creation (consisting of William Dembski, Keith Miller, Paul Nelson, Robert Newman, and David Wilcox) published a "General Statement on Creation" which was approved by the whole Commission and which, in addition, included more specific statements drafted to represent the diversity of views in the ASA (young earth view,

old earth view, theistic evolution view, and intelligent design view).³⁷ There is no doubt that old-earth and old-universe views dominate the membership of ASA.³⁸ However, this is not the result of an official ASA position on this topic. An article supporting YEC appeared as recently as the March 2008 issue of *Perspectives on Science and Christian Faith (PSCF)*³⁹ despite overwhelming rejection of that view by ASA members and by the general scientific community. The neutrality principle is alive and well.

Biological Evolution and Intelligent Design

Because of the neutrality principle, the question of evolution was an open question. As far as the ASA is concerned, biological evolution is a controversial matter for which there is no official position. Thus, ASA members were quite willing to debate the matter. In its first three decades, most ASA members felt that the evidence for biological evolution was not compelling, especially at the higher taxonomic levels. The fossil record was still quite sparse with few transitional forms and the molecular data was nonexistent. *Evolution and Christian Thought Today*,⁴⁰ published in 1959, was in the spirit of *Modern Science and Christian Faith*. Biological evolution was a "controversial" matter about which Christians disagreed.⁴¹

The year 1978 saw the publication of a special issue of *JASA* entitled "Origins and Change: Selected Readings from the *JASA*," edited by David L. Willis, Professor of Biology, Oregon State University.⁴² This special issue brought together several key articles on origins previously printed in *JASA* and represented the full spectrum of ASA members' views. With the exception of the introductions by the editor, each article had been previously published in *JASA*. This collection is a good snapshot of the ASA in 1978. While the issue included at least one voice unsympathetic to evolutionary biology, the overall impression given is that old earth geology, biological evolution, and Christianity can coexist.⁴³

If evolution is a controversial matter on which the ASA has no official position, the converse is also true. The ASA does not take a position on antievolution. Thus, the antievolutionism of the intelligent design (ID) movement found a place in the ASA. In the open forum spirit of the ASA, the debate was fully embraced.

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Somewhat anticipatory of the ID movement was the publication in 1986 of the booklet *Teaching Science in a Climate of Controversy: A View from the American Scientific Affiliation* by ASA's Committee on Integrity in Science Education composed of ASA members David Price, John Wiester, and Walter Hearn.⁴⁴ *Teaching Science*, consonant with the majority in the ASA, rejected the YEC view as being unscientific and an inappropriate intrusion of a particular religious viewpoint into the science classroom. However, it also warned against science trying to answer religious and philosophical questions beyond its competence, for example, extrapolating from observed random chemical processes to philosophical accidentalism.

The booklet walked through four topics of modern origins science: the Big Bang, origin of life, the Cambrian explosion, and human origins. Not surprisingly, *Teaching Science* was criticized by YEC advocates and teachers in Christian schools teaching from a YEC perspective, but, to the surprise of the authors and to many in the ASA, it was also highly criticized in the mainstream science education and creation/evolution literature as being just another "creationist" tract. In "The American Scientific Affiliation Booklet Controversy," Jerry Bergman traced this story, citing the critical reviews and quoting parts of them.⁴⁵

To some, even within the ASA, *Teaching Science* felt as if the ASA were taking an official position. It all depends on whether its publication is viewed as a statement of the official position of the ASA or merely as the position of its authors. If *Teaching Science* expressed the official position of the ASA, its clear rejection of YEC was a departure from the neutrality position. Also, some in the ASA objected to what appeared to be antievolution arguments in the discussion of the origin of life, the Cambrian explosion, and human origins.⁴⁶ The phrase "a view from the American Scientific Affiliation" suggests something official, but in light of the history of the ASA not taking official positions, it is not a stretch to say that *Teaching Science* simply represents one of many viewpoints held by ASA members.

While ID seemed to be firmly rejected by the mainstream scientific community, ASA considered ID to be an idea about which Christians in science could disagree and debate. Thus, ASA annual meetings and articles in *PSCF* engaged the ID manifestos,

Darwin on Trial (1991), *Darwin's Black Box* (1996), and *Intelligent Design* (1999) and their respective authors, Phillip Johnson, Michael Behe, and William Dembski.⁴⁷ Other proponents of ID defended that view, and many ASA members found in ID a framework that was useful in faith/science discussions. For the most part, this debate continues to the present. In keeping with the neutrality principle, the ASA has no official position on ID. In 2005, in his inaugural address as executive director of the ASA, Randy Isaac stated, in the context of his reflections on the neutrality principle,

I would like to make it very clear to everyone that ASA will not become an ID advocacy group nor will it become an anti-ID advocacy group. But we will provide the forum for clear thinking and debate—strong and forceful and vigorous debate—but in an atmosphere of love and respect without ridicule and scorn ...⁴⁸

The dialogue continues to this day with continued discussion of ID ideas spurred on by Stephen Meyer's *Signature in the Cell* (2009) and *Darwin's Doubt* (2013).⁴⁹ There has also been lively debate in the ASA surrounding the historicity of Adam and Eve, with a 2009 annual meeting symposium at Baylor University, and a special issue of *PSCF* in 2010 devoted to the topic.⁵⁰ Here the ASA discussion anticipated a willingness in broader evangelicalism to discuss the Adam and Eve question.⁵¹ ASA has no official position on the matter.

As noted earlier, ASA's unwillingness to become an ID advocacy group has made room for organizations such as the Discovery Institute, which takes a strong pro-ID position. ASA's unwillingness to become an anti-ID advocacy group (or a pro-TE/evolutionary creationist (EC) advocacy group) has made room for organizations such as the BioLogos Foundation, which takes a strong pro-TE/EC position.

Perhaps not insignificant is the name change experienced by *JASA* in September 1986. Here is the explanation given by Wilbur L. Bullock, then editor, as the name was changed to *Perspectives on Science and Christian Faith*:

We have changed the name of our Journal, primarily to indicate more specifically our major purpose: we are not merely an in-house publication of an organization, but are a vehicle for the discussion of the many aspects of science as they relate to Christian faith. We need to reaffirm

that, as evangelical Christians, we are committed to Jesus Christ as the Son of God and the Redeemer of mankind, as well as to the Scripture as our only infallible rule of faith and practice. Within that framework, there are now, and there have been throughout the history of the Christian church, differing views and traditions. In the ASA we encompass a spectrum of perspectives on creation and evolution, church and state, war and peace, Arminianism and Calvinism, and certainly on the highly controversial, recent issues of the ethics of the biotechnological manipulation of the world around us, including animal and human life. If you disagree with the position taken by any of our contributors, we encourage you to write a regular paper, a communication, or a letter. We can't publish everything we receive, but our major guidelines are for clear and concise writing in a spirit of respect and gentleness. We may not always achieve this goal, but that is the end toward which we strive.⁵²

Ever since, the fact that "perspectives" is plural has been noted—clearly in keeping with the "no official position" position.

Does Integrity in Science Demand "Official" Positions?

In more recent times, there has been pressure for the ASA to take an official position against a young earth and flood geology, and to affirm an earth history that stretches back billions of years. Such a history has been definitively established by modern science. To do so is thought to be necessary for the ASA to remain credible as an organization that promotes integrity in science.

Everest began his reflection on "What Is the 'Position' of the ASA?" in *The American Scientific Affiliation: Its Growth and Early Development*, noting the following:

In 1981, Executive Director Herrmann received a letter which contained this gem:

As I sat listening to the ... presentations, the panelists, and especially comments from members of the audience—I thought, "This wheel has been going around for forty years? When is it going to stop?"

The writer, a well-qualified university professor, a geologist, is strongly in favor of eliminating the neutral stance of the ASA on the subject of evolution in favor of a "positive" one.⁵³

Randy Isaac, Executive Director of the ASA from 2005 to 2016, provided a perhaps more nuanced view of the neutrality principle that would allow ASA to reject certain views on the basis of integrity in science. At his inaugural address as executive director, he devoted about one-third of his 20-minute talk to this subject.

However, we do need to think through what it means because I think too often we have misrepresented it. And one of the things that it does *not* mean is wishy-washy relativism. It does not mean that oh, whatever you think is fine, whatever you think is fine, oh, yeah, okay, you believe something else, fine, everything is okay. That's not neutrality. That's not neutrality and that's not what ASA is all about.

We have a strong platform of two planks that is not very neutral at all. On the one hand we have a strong statement of faith ...

The second one is our commitment to integrity in science. Extremely important. There is so much in today's world that tries to pass off as science, a bunch of technical jargon. We are committed to integrity in science. And we have some slightly different views as to exactly what that means but the scientific methodology is time tested and, through its process, we arrive at a better understanding of a description of our world. We must ensure integrity in science ...⁵⁴

A written version of these ideas appeared in the July/August 2007 *Newsletter of the ASA and CSCA* which included this even stronger statement:

Our stand for integrity in science puts us in contrast to those who modify scientific understanding to conform to their theological preferences. Although we may not understand all things, we should not yield to the temptation to misrepresent scientific results to make it easier to integrate science with our faith.

Let us not permit our policy of neutrality to lure us into a mode of reluctance to take a stand on any particular issue. Rather, let us do the hard work of testing ideas against the standards of our creeds and of our integrity in science and then let us share these perspectives in an atmosphere of love and respect.⁵⁵

Exactly what he meant is explained in his *Essay Review* of the RATE Project:

The ASA does not take a position on issues when there is honest disagreement among Christians

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provided there is adherence to our statement of faith and to integrity in science. Accordingly, the ASA neither endorses nor opposes young-earth creationism which recognizes the possibility of a recent creation with appearance of age or which acknowledges the unresolved discrepancy between scientific data and a young-earth position. However, claims that scientific data affirm a young earth do not meet the criterion of integrity in science. Any portrayal of the RATE project as confirming scientific support for a young earth, contradicts the RATE project's own admission of unresolved problems. The ASA can and does oppose such deception.⁵⁶

It appears that Isaac is willing to say that, even with the neutrality principle, the ASA should be able to take a stand that the scientific evidence supports an old earth. While he allows equivocation on the basis of appearance of age or some unknown discrepancy, he does not seem to think that integrity in science allows for a scientific argument for a young earth. Despite Isaac's affirmations of the neutrality position, this seems to be a shift—perhaps a shift that would finally allow ASA as an organization to embrace and promote more fully old-earth and old-universe views.

Climate Change

The ASA has had a long history of promoting environmental stewardship and creation care. Its statement of faith declares, "We recognize our responsibility, as stewards of God's creation, to use science and technology for the good of humanity and the whole world."⁵⁷ The ASA has seen no conflict between the message of the environmental movement and the Christian faith. We have already mentioned Bube's contributions on the subject of Christian environmentalism while editor of *JASA*. Many annual meeting presentations, keynotes, and even entire meetings have been devoted to these issues. However, the neutrality doctrine seems to apply here as well. Some ASA members have criticized aspects of the environmentalist movement and have taken advantage of the open forum character of ASA in order to express their views.

A series of articles in *PSCF* in the mid-1990s from Calvin DeWitt, Richard Bube, and Richard Wright called Christians to environmental activism.⁵⁸ Included among these articles was a reprint of "An Evangelical Declaration on the Care of Creation."⁵⁹

Alternate positions were expressed by Calvin Beisner and Edwin Olson with a response to Beisner by Wright.⁶⁰ Olson concluded his paper with the following line that captures the spirit of the neutrality policy:

Richard Wright is to be commended for his comprehensive overview of environmental controversy. I hope that his paper, Beisner's response, and my critique stimulate further discussion of this important subject. From my standpoint, that discussion should emphasize papers which focus on a single environmental issue and are multidimensional—including scientific, economic, political and theological dimensions. It would also help to lower the emotional pitch.⁶¹

Since that exchange and until December 2014, all the articles in *PSCF* concerning environmental issues seemed to promote the mainstream environmentalist point of view. Perhaps ASA actually did have an "official" position on these different topics (climate change, global warming, stratospheric ozone, acid rain, biodiversity loss, etc.) despite there appearing to be the backlash among politically conservative and religiously evangelical Americans that Wright had begun to sense in 1995.⁶²

In 2015, *PSCF* had a special issue devoted to environmental science in which there was one out of six articles that could be said to be outside the consensus (among ASA members and among the scientific community in general) viewpoint on environmentalism and climate science. Donald Morton's "Climate Science and the Dilemma for Christians" emphasized the uncertainties in the atmospheric temperature records and the connection between atmospheric temperature and atmospheric carbon dioxide concentrations. While Morton's climate change "skeptic" paper was published, it was accompanied with an invited response entitled "Christian Action in the Face of Climate Change" by atmospheric scientist Thomas Ackerman.⁶³ Previously, in 2007, Ackerman had published in *PSCF* "Global Warming: Scientific Basis and Christian Responses."⁶⁴ The exchange between Morton and Ackerman continued in the June 2015 issue of *PSCF*.

Such a dialogue in the pages of *PSCF* is continued evidence of the neutrality doctrine in which the ASA does not take an official position on a controversial question such as global warming or climate change. Apparently, the absence of contrary views means

only that no one is offering them for publication either in the journal or at ASA meetings.

Interestingly, however, some have argued that perhaps integrity in science demands that ASA not be neutral on the question of climate change and anthropogenic global warming. On January 17, 2007, Executive Director Randy Isaac participated in a press conference announcing “An Urgent Call to Action: Scientists and Evangelicals Unite to Protect Creation.”⁶⁵ Isaac’s signature on the document showed his affiliation with ASA. While there was much symbolism in the event, I think it was clear that he was not stating any official ASA position other than what is found in ASA’s statement of faith. Positions on specific creation-care related topics were personal positions.

In responding to the theft and public release of emails from the Climate Research Unit at the University of East Anglia in 2009 (popularly dubbed “Climategate”), Isaac wrote in the *Newsletter of the ASA and CSCA*,

... Science isn’t free of fraud, error, and subjectivism. Rather, it is the rigor of scientific methodology that sooner or later ferrets out such error. The emphasis on the reproducibility of results, clarity of the details of all experiments, peer review, and many other tactics is designed to correct any errors that will inevitably arise. We must ensure that this methodology is scrupulously followed.

We tend to modify scientific interpretations in order to conform more closely to our preferred interpretation of the Bible or our theological perceptions. This isn’t in keeping with integrity in the practice of science. Changes in scientific understanding must go through the rigor of scientific methodology substantiated with solid data and clear analysis that the entire community can address. When it has earned the status of majority acceptance, there is integrity in the result.

It is my personal opinion, after three years of studying the literature and meeting with scientists of various persuasions, that there is indeed compelling evidence for current and future global warming due predominantly to the consumption of fossil fuel ... Several ASA members disagree with my personal view, and I welcome that diversity as an important part of our dialog.⁶⁶

There is a suggestion here, I think, that Isaac anticipates a day when integrity in science may demand

the acceptance of the consensus view just as it does for him in the case of the age of the earth. That day is not yet here, it seems, and so the “no official policy on controversial questions” remains in place.

Later that same year, Isaac wrote,

In ASA we have a healthy diversity of views on climate change. That diversity should not be suppressed but should instigate fruitful dialog leading to real action. Unfortunately, this diversity of opinion can often devolve into cheerleading and derision. It’s important that the debate go forward with civility, decorum, and loving respect for our brothers and sisters in Christ. We need the best minds and the best ideas to solve the difficult problems ahead of us.

A second aspect of integrity in the process of science is to follow the data. The self-correcting nature of science ensures that data win. Continued focus on collecting and understanding data will lead to the correction of any errors or misinterpretation that may have occurred in the past. If any errors have been made by the climate change community, the only way to correct it with integrity is to provide better data. Defaming the character of other scientists, whether it be by the inappropriate release of emails taken out of context or by accusing them of ulterior motives, is not within the bounds of integrity.⁶⁷

Again, while Isaac does not actually pull the “integrity in science” lever, it seems that he anticipates being able to do so at some point. We are still in the midst of the global warming and climate change debate, and while there appears to be a near consensus in the scientific community and among ASA members, it remains to be seen if ASA will be home to a debate that seems to be finished in the mainstream scientific community.

Whither ASA? and Some Personal Reflections

In practice, ASA’s neutrality doctrine accomplishes two things:

1. It allows the full exploration of new views—biblical, theological, philosophical, or scientific. New views are granted a hearing and advocates are allowed to defend them.
2. It protects minority views, consensus debunked views, conservative and traditional views, and

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others. There is a sense in which ASA has committed itself to respect and to continue to engage fellow believers who hold these views.

ASA's role in producing helpful educational material is said to be hampered by this doctrine. Some members say that we should not produce educational materials with which some or even many of our members might disagree. But surely this is a misguided conclusion. The very first project of the ASA, *Modern Science and Christian Faith*, was thought to be a useful contribution even though all of the articles did not express unanimity. On the contrary, the consideration of issues from different perspectives was thought to sharpen our thinking. ASA members express agreement on only a bare bone of assertions. *PSCF's* Manuscript Guidelines (found on the inside front cover of each issue) state, "Published papers do not reflect any official position of the American Scientific Affiliation." Things stated in articles, communications, book reviews, and letters to the editor are *not* official positions of the ASA. The ASA has no official positions except those found in the ASA Statement of Faith. Why would this guideline not be true of any material produced by the ASA?

The Science and Faith Education Project (also known as the Lay Education Project) was a multimedia project focused on the physical sciences and the old-universe/old-earth views that was attempted in the late 1990s and early 2000s. In this project, it appeared that the ASA was ready to embrace and to propagate an anti-YEC perspective. The project was to include a book, a professionally produced DVD, and a study guide. It was designed for home schools, Christian high schools, and Sunday schools.⁶⁸ For various reasons, the project as originally planned was cancelled.⁶⁹ However, the project was not cancelled because it took a particular perspective (anti-YEC, but concordistic and progressive creationist friendly) even though there were some ASA members critical of the project because they disagreed with the perspective adopted.⁷⁰

Many in the ASA were and continue to be frustrated by the inability of the organization to carry out its educational mission. Even though the reasons for canceling this project were many, it is clear that some seem to think that they must agree with the material that ASA produces. This seems misguided. Even in the Science and Faith Education Project, the final published material could have borne the names


of the individuals who produced it, just as a *PSCF* article bears the name of its author along with the implicit disclaimer that the article represents the views of its author and not of the ASA or all the members of the ASA. Does not ASA's history tell us that ASA is interested in producing materials representing various perspectives and that such diversity of viewpoint sharpens our thinking?

I suggest that the ASA reinvigorate its educational role by allowing various types of materials to be produced in the organization's name. ASA's "no official position on controversial questions" needs to be stated explicitly. There could be a clear disclaimer saying that published works represent the views and opinions of the authors and not of the ASA. This is not to suggest an "anything goes" mentality, but to clarify that ASA leaders must be willing to produce materials with which they may not fully agree.

In today's ASA, we may be more settled than ever on questions about the age of the earth/universe or biological evolution or creation care, but there are many issues for which there is ongoing debate: the historicity of Adam and Eve, the Fall into sin and its detectability in the historical and scientific record, the multiverse, body/mind/soul issues, biblical criticism and inerrancy, homosexuality, reproductive technologies, stem cell research, and others. Sometimes complicating the faith/science debate is the fact that there is a broad range of theologies at play—from predestinarian Calvinism to open theism, from Roman Catholicism with papal authority to Pentecostalism with private revelations. Yet there is a deep unity, despite our differences, that we uniquely experience in the ASA. It stems from our common ecumenical faith and our common love for and interest in science. Finding others who put those two things together is something that we do not often find in our local churches or in the places where we live out our science-related callings.

Sometimes we are exasperated by related organizations that exist in part because of ASA's neutrality doctrine. We are frustrated that these organizations attract more followers, that those followers donate more money, that they are more successful in publishing educational materials, and so forth. Perhaps we should see them as offshoots of the ASA rather than as competitors. While the ASA values the diverse dialogue and the more open forum, the other groups value the opportunity to

consider the issues from a narrower perspective in which there is more common ground. Indeed, some of us are affiliated with multiple organizations and derive value from their respective emphases. I believe that it would be a loss to the Christian community as a whole for the ASA to turn into one of these more narrowly focused groups.

I personally value discussing faith/science topics with people with whom I share common ground, especially on the theological front. Because I am a human being, I am also going to think and to write about these topics from my particular place on the theological and philosophical landscape—whether I am talking to fellow ASA members or to theologians in my particular denomination. I expect others to do the same. But listening to others who speak from different perspectives, especially from within the broader Christian community, may open our minds to better ways of thinking. After all, we confess that we follow the same God, the same Lord Jesus Christ, the same Holy Spirit, the same Bible, and we admit that we all live in the same created universe. Our differences derive from all sorts of psychological, sociological, historical, and cultural influences, both personal and corporate. ASA can be a place where differences can at least be tolerated and perhaps even appreciated. 

Acknowledgments

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Notes

- ¹Richard H. Bube, "We Believe in Creation," *Journal of the American Scientific Affiliation* (hereafter *JASA*) 23, no. 4 (1971): 121–22, <http://www.asa3.org/ASA/PSCF/1971/JASA12-71Bube.html>.
²"ASA Statement of Faith," *American Scientific Affiliation*, <http://network.asa3.org/?ASAbeliefs>.

³The BioLogos Foundation is a counter-example. The commitment of BioLogos to a theistic evolution (TE) or evolutionary creationist (EC) view and the desire to advocate strongly for that view require that it go outside of the ASA, since such advocacy implicitly requires the organizational rejection of contrary viewpoints; it does not go unnoticed that BioLogos has a much more detailed statement of faith compared to that of the ASA and that there is an upfront commitment to the EC view. See "What We Believe," BioLogos, <http://biologos.org/about-us/our-mission/>. There is nothing wrong with this, but it is quite different from the ASA's approach.

⁴F. Alton Everest, ed., *Modern Science and Christian Faith* (Wheaton, IL: Van Kampen Press, 1948; Wheaton, IL: Scripture Press, 1950).

⁵Irving A. Cowperthwaite, "An Outline of the Aims and Purposes of the Christian Students' Science Handbook," reprinted as Appendix 30 in *The American Scientific Affiliation: Its Growth and Early Development*, F. Alton Everest (Ipswich, MA: ASA Press, 2010), 182–83.

⁶As indicated in the transcribed discussion found in E. Y. Monsma, "Some Presuppositions in Evolutionary Thinking," *JASA* 1, no. 3 (1949): 15–30, <http://www.asa3.org/ASA/PSCF/1949/JASA6-49Monsma.html>.

⁷Controversial, in the sense that Christians in the sciences did not agree. Already by this time, there was broad consensus in the scientific community on the age of the earth based on geological considerations.

⁸Claude E. Stipe, "Does the ASA Take a 'Position' on Controversial Issues?," *JASA* 29, no. 1 (1977): 1–4, <http://www.asa3.org/ASA/PSCF/1977/JASA3-77Stipe.html>.

⁹Everest, *The American Scientific Affiliation: Its Growth and Early Development*, 79–83.

¹⁰F. Alton Everest, "The American Scientific Affiliation—The First Decade," *JASA* 3, no. 3 (1951): 33–38, <http://www.asa3.org/ASA/PSCF/1951/JASA9-51Everest.html>.

¹¹H. Harold Hartzler, "The ASA History and Purposes," *JASA* 7, no. 3 (1955): 3–5, <http://www.asa3.org/ASA/PSCF/1955/JASA9-55Hartzler.html>.

¹²Delbert N. Eggenberger, "Editorials," *JASA* 8, no. 4 (1956): 2, <http://www.asa3.org/ASA/PSCF/1956/JASA12-56Eggenberger.html>.

¹³Delbert N. Eggenberger, "Editorial," *JASA* 11, no. 4 (1959): 2, <http://www.asa3.org/ASA/PSCF/1959/JASA12-59Eggenberger.html>.

¹⁴William J. Tinkle, "The ASA in Retrospect," *JASA* 11, no. 2 (1959): 8–9, <http://www.asa3.org/ASA/PSCF/1959/JASA6-59Tinkle.html>.

¹⁵Everest, *The American Scientific Affiliation: Its Growth and Early Development*, 84–87.

¹⁶Christopher M. Rios, *After the Monkey Trial: Evangelical Scientists and a New Creationism* (New York: Fordham University Press, 2014).

¹⁷William A. Smalley and Marie Fetzer, "A Christian View of Anthropology," in *Modern Science and Christian Faith*, ed. Everest, (1950), 98–195, <http://www.asa3.org/ASA/resources/MSCF/MSCF1950Smalley.pdf>.

¹⁸Richard H. Bube, "A Perspective on Scriptural Inerrancy," *JASA* 15, no. 3 (1963): 86, <http://www.asa3.org/ASA/PSCF/1963/JASA9-63Bube.html>.

¹⁹Ibid.

²⁰Harold Lindsell, *The Battle for the Bible* (Grand Rapids, MI: Zondervan, 1976), 128–31.

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- ²¹Paul H. Seely, "The Three-Storeyed Universe," *JASA* 21, no. 1 (1969): 18–22, <http://www.asa3.org/ASA/PSCF/1969/JASA3-69Seely.html>.
- ²²Paul Seely has advanced this view within the ASA throughout his scholarly career. It continues to be advanced in the views of Denis O. Lamoureux. For example, see Lamoureux's article, "Beyond the Cosmic Fall and Natural Evil," *Perspectives on Science and Christian Faith* (hereafter *PSCF*) 68, no. 1 (2016): 44–59.
- ²³R. Laird Harris, "The Typical Modernistic View of Scripture," *JASA* 21, no. 3 (1969): 92–93, <http://www.asa3.org/ASA/PSCF/1969/JASA9-69Harris.html>.
- ²⁴Robert C. Newman, "Infallible Inspiration Taught by Scripture Itself," *JASA* 21, no. 3 (1969): 93–94, <http://www.asa3.org/ASA/PSCF/1969/JASA9-69Newman.html>.
- ²⁵Paul H. Seely, "Reply by Seely," *JASA* 21, no. 3 (1969): 94, <http://www.asa3.org/ASA/PSCF/1969/JASA9-69Seely.html>.
- ²⁶Richard H. Bube, "Editor's Comments," *JASA* 21, no. 3 (1969): 93, at the end of the Harris letter.
- ²⁷Rustum Roy and Richard H. Bube, "Is There a Christian Basis for a Sexual Revolution?," *JASA* 26, no. 2 (1974): 70–81, <http://www.asa3.org/ASA/PSCF/1974/JASA6-74Bube.html>; Richard H. Bube, "Human Sexuality: (A) Are Times A'Changing?," *JASA* 31, no. 2 (1979): 106–12, <http://www.asa3.org/ASA/PSCF/1979/JASA6-79Bube2.html>.
- ²⁸Richard H. Bube, "Book Review of *The Returns of Love: Letters of a Christian Homosexual*," *JASA* 23, no. 3 (1971): 118–19, <http://www.asa3.org/ASA/BookReviews1949-1989/9-71.html#Davidson>; ____, "Christian Answers on Homosexuality: An Interview with Paul E. Larsen, E. Mansell Pattison, and John White," *JASA* 31, no. 1 (1979): 48–53, <http://www.asa3.org/ASA/PSCF/1979/JASA3-79Bube3.html>.
- ²⁹Richard H. Bube, "Biological Control of Human Life," *JASA* 34, no. 4 (1982): 225–31, <http://www.asa3.org/ASA/PSCF/1982/JASA12-82Bube.html>; ____, "An Open Letter to Inter-Varsity Press about *Brave New People*," *JASA* 36, no. 4 (1984): 256, <http://www.asa3.org/ASA/PSCF/1984/JASA12-84Bube.html>.
- ³⁰Richard H. Bube, "Abortion," *JASA* 33, no. 3 (1981): 158–65, <http://www.asa3.org/ASA/PSCF/1981/JASA9-81Bube.html>.
- ³¹Richard H. Bube, "Euthanasia," *JASA* 34, no. 1 (1982): 29–33, <http://www.asa3.org/ASA/PSCF/1982/JASA3-82Bube.html>.
- ³²Richard H. Bube, "A New Consciousness: Energy and Christian Stewardship," *JASA Supplement* 1 (1976): 8–15, <http://www.asa3.org/ASA/PSCF/1976/JASA3-76Bube2.html>; ____, "A Christian Affirmation on the Stewardship of Natural Resources," *JASA* 29, no. 3 (1977): 97–98, <http://www.asa3.org/ASA/PSCF/1977/JASA9-77Bube.html>; ____, "Energy and the Environment: (A) Is Energy a Christian Issue?," *JASA* 35, no. 1 (1983): 33–37, <http://www.asa3.org/ASA/PSCF/1983/JASA3-83Bube.html>; ____, "Energy and the Environment: (B) Barriers to Responsibility," *JASA* 35, no. 2 (1983): 92–100, <http://www.asa3.org/ASA/PSCF/1983/JASA6-83Bube.html>; ____, "Energy and the Environment: (C) Christian Concerns on Nuclear Energy and Nuclear Warfare," *JASA* 35, no. 3 (1983): 168–75, <http://www.asa3.org/ASA/PSCF/1983/JASA9-83Bube.html>.
- ³³Duane T. Gish, "An Open Letter of Protest," *JASA* 24, no. 2 (1972): 77–79, <http://www.asa3.org/ASA/PSCF/1972/JASA6-72Gish.html>.
- ³⁴Richard H. Bube, "Editor's Reply," *JASA* 24, no. 2 (1972): 79, at the end of the Gish letter.
- ³⁵Everest, *The American Scientific Affiliation: Its Growth and Early Development*, 84.
- ³⁶Duane T. Gish, "An Inconsistent Position" (in response to Hale Sparks, "The Protein Clock," *JASA* 23, no. 4 [1971]: 123–28), *JASA* 23, no. 4 (1971): 125–28, <http://www.asa3.org/ASA/PSCF/1971/JASA12-71Gish.html#Duane%20T.%20Gish>.
- ³⁷"Commission on Creation," American Scientific Affiliation, http://www.asa3.org/ASA/topics/Evolution/commission_on_creation.html.
- ³⁸See, for example, the results of a survey on origins of ASA members in which around 85% of those participating agreed that old-earth and old-universe views were supported by credible scientific evidence: "ASA Survey on Origins," American Scientific Affiliation, <http://c.ymcdn.com/sites/network.asa3.org/resource/resmgr/OriginsResults.pdf>; see also Randy Isaac, "The Executive Director's Corner," *Newsletter of the ASA and CSCA* 52, no. 4 (2010): 2, <http://www.asa3.org/ASA/newsletter/julaug10.pdf>.
- ³⁹Larry Vardiman, Andrew A. Snelling, Eugene F. Chaffin, Steven A. Austin, D. Russell Humphreys, Donald B. DeYoung, and Steven W. Boyd, "RATE Responds to the Isaac Essay Review," *PSCF* 60, no. 1 (2008): 35–36, <http://www.asa3.org/ASA/PSCF/2008/PSCF3-08Vardiman.pdf>.
- ⁴⁰Russell L. Mixer, ed., *Evolution and Christian Thought Today* (Grand Rapids, MI: William B. Eerdmans, 1959).
- ⁴¹Christopher M. Rios in chapters 2 and 5 of *After the Monkey Trial* argues that the majority of ASA leaders and members were on board with evolution by the end of the second decade. In part, it depends on how you define evolution. If you include evolution of the higher taxonomic levels (so-called macroevolution), it seems clear that questions remained. The second edition of Russell L. Mixer's *Creation and Evolution* (Mankato, MN: American Scientific Affiliation, 1967) was still cautious about evolution above the taxonomic level of order. Additionally, the energy Richard H. Bube put into making room for theistic evolution in the 1960s and 1970s suggests that not all were convinced. Finally, the openness to ID by many in the ASA reveals that the embracing of evolution may not have run very deep. In the end, whether it is the second decade as Rios suggests, or the third as I suggest, is perhaps a matter not unlike the pronunciation of the word "tomato."
- ⁴²David L. Willis, ed., *Origins and Change: Selected Readings from the "Journal of the American Scientific Affiliation"* (Elgin, IL: American Scientific Affiliation, 1978).
- ⁴³On a personal note, this special issue of the journal was one of my first exposures to the ASA. I had the privilege in my youth and in my high school education of never having considered evolution and Christian faith to be incompatible. I did not see what I was learning at Purdue University as a biology major to be in conflict with my Christian faith. However, at Purdue, I did begin to encounter very conservative religious voices—local churches and para-church groups—promoting a conflict. It was reassuring to find the ASA's voice.
- ⁴⁴David Price, John Wiester, and Walter Hearn, *Teaching Science in a Climate of Controversy: A View from the Ameri-*

can Scientific Affiliation (The Committee for Integrity in Science Education of the American Scientific Affiliation, 1986); partial text available at <http://www.asa3.org/ASA/education/origins/climate2.pdf>.

⁴⁵Jerry Bergman, "The American Scientific Affiliation Booklet Controversy," *PSCF* 58, no. 4 (2006): 303–309, <http://www.asa3.org/ASA/PSCF/2006/PSCF12-06Bergman.pdf>.

⁴⁶Howard Van Till, personal communication.

⁴⁷Again, on a personal note, my involvement with ASA in the 1990s began as a result of a review of Phillip Johnson's *Darwin on Trial* and a debate/dialogue with Michael Behe at the 1994 ASA Annual Meeting at Bethel College in Minnesota. See Terry M. Gray, "The Mistrial of Evolution," *The Banner*, April 13, 1992, 12–13, with an expanded online version at http://www.asa3.org/gray/evolution_trial/dotreview.html; and —, "Complexity—Yes! Irreducible—Maybe! Unexplainable—No! A Creationist Criticism of Irreducible Complexity" (A Review of *Darwin's Black Box* by Michael Behe), American Scientific Affiliation Annual Meeting 1994, http://www.asa3.org/evolution/irred_compl.html.

⁴⁸Randy Isaac, "State of the ASA," audio file of an address given at the 2005 ASA Annual Meeting at Messiah College, <http://www.asa3.org/ASAradio/ASA2005Isaac.mp3>; here is a transcript of the talk from approximately 8:00 to 13:00 containing remarks about the neutrality doctrine:

And, of course, there's that policy that says ASA won't take a stand on anything. We have our official policy of neutrality. So how can we get anything done? Permit me to digress a few minutes and comment on this policy of neutrality. First of all, I will say that as long as I'm in this role, we won't change that policy and we will not have it up for debate. Over the years, it's been fascinating to read the history in the growth and development of the ASA. This was heavily discussed many times in the origin of the ASA.

It was reaffirmed over and over again through its development. It played a strong role, and I see no reason to change it. However, we do need to think through what it means because I think too often we have misrepresented it. And one of the things that it does *not* mean is wishy-washy relativism. It does not mean that oh, whatever you think is fine, whatever you think is fine, oh, yeah, okay, you believe something else, fine, everything is okay. That's not neutrality. That's not neutrality, and that's not what ASA is all about.

We have a strong platform of two planks that is not very neutral at all. On the one hand, we have a strong statement of faith. Many of you worked long and hard to word it carefully and really structure it in the proper way based on the Apostolic and Nicene Creed and we affirm our collective belief in one triune God who is the creator of all things, whose incarnate son came to earth, to die on the cross for our salvation and was resurrected to prepare a place for us and it is through that cross that we have our salvation and that we begin to understand what this world is all about. This is our statement of faith. That is radical—that is not neutral. And that is where our proactive stand is. And we stand for that against the atheistic naturalism in this world, and we must not forget that that is a most important fight that we have and we must rally around that. That's one important plank of the ASA.

The second one is our commitment to integrity in science. Extremely important. There is so much in today's world that tries to pass off as science a bunch of technical jargon. We are committed to integrity in science. And we have some slightly different views as to exactly what that means but the scientific methodology is time tested and through its process we arrive at a better understanding of a description of our world. We must ensure integrity in science. Now how does that play out? Because in many places we will have differences of opinion as to what it means under those two umbrellas, and our position is that the role of the ASA is to encourage and enable dialogue in an atmosphere of trust and to respect the honest differences within those two key planks of our platform. And it is important that we continue to provide that.

It is not easy. And there will be many difficult times. Some of you may have been there, others of you have heard about that time forty-two years ago, when at this meeting, it was filled with discord and rancor. After the meeting, a team of ten founded the Creation Research Society. Eight of them were ASA members. It was not a good time in ASA history. It was not a meeting characterized by good relationships. I believe ASA stood firm on its principles, and I believe it was the right path.

There are many other areas we have differences of opinion. I believe the ASA was a very important environment for the development of intelligent design. Many of our members were and continue to be important in that. I'm glad to see that Sunday afternoon we have our symposium on models of creation, and we will have a debate on the topic. At this point, I would like to make it very clear to everyone that ASA will not become an ID advocacy group nor will it become an anti-ID advocacy group. But we will provide the forum for clear thinking and debate, strong and forceful and vigorous debate, but in an atmosphere of love and respect without ridicule and scorn and in recognition of our unity as a body of Christ, and our unity in our belief in the creator and that our real enemy here is atheistic naturalism.

Even as we skirmish about the best place to carry out that fight, we must never lose sight of what the real battle is all about. And I think it is so easy for us to forget, in our passion and our focus, when other people are not hearing our arguments, and we resort to ridicule and scorn. It's kind of human nature that comes out. But part of our Christian testimony—whether it be in our open meetings, whether it be on the discussion list, or in any environment as the body of Christ—it is important that we continue to value each other as the body of Christ and to give honor to him in the course of our discussion.

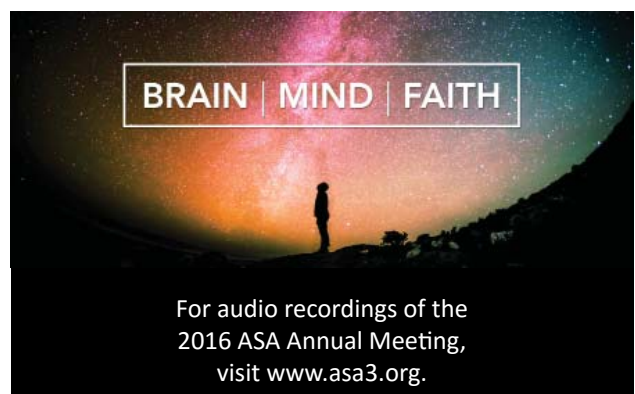
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Randy Isaac

An Interview with Randy Isaac, ASA Executive Director, 2005–2016

Christopher M. Rios

This past April the ASA celebrated the retirement and work of its fourth executive director, Randall D. Isaac. An ASA member since 1976, Isaac is a graduate of Wheaton College and the University of Illinois at Urbana-Champaign and was a solid-state physics researcher and executive at IBM before he began serving as executive director in 2005. Shortly after assuming the title Director Emeritus, he agreed to do an interview about his time leading the ASA.

Randy, in a sentence or two, how would you summarize your time as ASA's executive director?

These eleven years have been a most stimulating time for me as I have met and befriended so many extraordinary people with deep insight and understanding. It has been a great joy to see people discover the ASA and to see their spiritual lives enriched through fellowship with other Christians in the sciences.

What were the most important issues you and the group faced? What challenges and accomplishments stand out in your memory?

The most urgent issue for ASA when I joined in 2005 was establishing a clear financial statement to show the current status as well as expectations for the future. The organization could not operate effectively when many payroll days brought uncertainty about sufficient funds. Clarity of funding helped us understand how much funds we needed to raise to meet the committed expenses.

This has been a perennial issue for ASA. How is the financial situation today?

It will always be a challenge to receive sufficient funding for our operations and for all the projects we would like to do.

Today we have much better insight into our funding sources and our expenses. Vicki Best has brought us her expertise in development work and has led a very successful funding campaign. She also spearheaded the acquisition of our office condo, saving us a significant amount of expense in leasing space. We are now well positioned to be able to seek and obtain funding for new projects.

Other challenges or accomplishments?

A longer-term issue for ASA was to be transformed into a true internet-based organization. Terry Gray and Jack Haas had begun the ASA website in 1995 but by 2005 it was only a repository of archived publications with no membership management. It was a daunting task but in 2012 the ASA outsourced member management to YourMembership.com and integrated it with the online resources.

A third major challenge was growing the reputation of ASA as a high-quality organization with top-credentialed work in both science and theology. This must be done in the context of an organization with a policy of neutrality and a mission of enabling dialogue among diverse views. We all tend to judge quality by whether we agree with the work, so the

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issue is one of generating respect for opposing views. We have not accomplished as much in this direction as I would have liked, but I nevertheless feel that ASA is one of the few organizations in science and faith to incorporate such opposing views.

What would more accomplishment in this area look like?

The scientific enterprise is characterized by a high-level trend of convergence around fundamental ideas as the growing accumulation of data builds evidence for distinguishing among competing theories. This tends not to happen in science and faith debates; it seems that champions of each perspective simply continue to defend their views, with no convergence to agreement in sight. The ideal accomplishment in this area would be for differing camps to acknowledge the weaknesses of their own position and to honestly address them with other groups. At the very least, there should be substantive dialogue toward this end rather than advocates simply continuing to repeat their positions.

Any other major challenges?

Yes. Another was the competition from advocacy groups. When the ASA was founded, there were relatively few organizations focused on science and faith. In 1963, ASA members desiring an advocacy of a young-earth perspective formed the Creation Research Society. Over the years, other organizations were begun, often by ASA members, to advocate for a variety of positions such as concordism, intelligent design, evolutionary creation, et cetera. These groups attracted far more funding and passionate adherents, drawing resources away from the ASA with its focus on dialogue and fellowship.

It is interesting that you describe the relationship with other groups as one of competition. How would you describe the benefits the ASA brings that these organizations lack?

The competition is for the resources of time and money of both the leading thinkers and the audience. The collaboration lies in the mutual focus on harmony of science and Christian faith. The benefits that ASA brings include an openness and acceptance of members, no matter what their view. Some would dispute this, feeling that the majority opinion in the

ASA is that of evolutionary creation and, therefore, those with differing views feel uncomfortable. It is indeed a challenge to make minority viewpoints welcome in our journal and at our meetings, but the act of worshipping together despite differences of opinion is a powerful way of bringing unity in the body of Christ.

What about substantive issues in the area of science and faith?

The two most dominant issues that came to the fore in ASA were human ancestry and climate change. The human genome project had barely been completed in 2005, and the implications for human ancestry soon became clear. While nothing new was discovered, the prevailing understanding that historically the human ancestral population was always much greater than two was now substantiated and quantified by genetic analysis. The implications for understanding the historical role of Adam and Eve were significant. ASA played a key role in 2009 when Walter Bradley organized a seminal symposium on the topic.

Climate change was another issue tearing apart ASA members. I had the privilege of being invited to participate in an evangelical-scientist retreat in 2007 that brought evangelical leaders together with top climate change scientists for three days of private consultations. Meeting the renowned scientists and hearing the case in detail had a big influence on me. Not all ASA members are in agreement, but most members are now actively engaged in pursuing strategies that respond to our responsibility in affecting our climate.

You led the ASA during times that saw considerable public attention given to science-religion questions. I am thinking specifically about the rise of intelligent design (ID) and the New Atheism, about legal trials such as the Dover case in 2005, and about the popularity that came to groups such as Answers in Genesis. Did these developments benefit or challenge the ASA in a particular way?

The wide public attention given to the situations you cited was a mixed blessing. On one hand, it generated an awareness in the general public that these issues existed. It generated a broad audience of people who had heard the terminology and wanted to understand more. On the other hand, it helped build stereotypes. People tended to form opinions

that “all” Christians must be YEC or “all” Christians must be ID or “no” Christian can believe in evolution. Without understanding the nuances of the discussions, people were categorized as “good” or “bad” based on their alliance with a particular position. Part of our challenge in ASA is to leverage this opportunity to broaden the audience for dialogue and to educate people about the breadth of ideas within the scope of Christian faith.

Thinking about the past quarter-century, what changes have you noticed in the tenor of Christianity and science discourse, either within or outside the ASA?

The prevailing tone of discourse on science and faith has unfortunately tended to become more and more polarized, perhaps reflecting the way in which politics has become sharply polarized. Within a given community of viewpoints, there is great harmony and good research progress but respect for other views has not grown appreciably. From some measures, it appears that seeing evolution as a viable evangelical position is now much more broadly accepted than a quarter century ago. Unfortunately, the sharper degree of polarization has also made many organizations restrict the range of opinions within their institution.

This brings us back to the ASA’s commitment to openness in controversial areas. Many people see this as one of the ASA’s strengths. Was it difficult to maintain during your tenure? What do you list among the important controversial issues? Is evolution still one of them?

The oft-stated policy not to take a position in areas of honest disagreement among Christians is an extremely important aspect that characterizes ASA. It is a most difficult one to maintain. For one thing, it is not easy to differentiate an honest disagreement from a dishonest one. My personal preference, though not an official ASA position, was that the reference for honest disagreements was the accepted consensus view of the scientific community for scientific matters and of the Christian theological community for theological matters, in areas that such consensus existed. Perspectives that fall within the bounds of such consensus, but differ on other matters, are clearly honest disagreements. However, perspectives that challenge the established scientific consensus may or may not be an honest disagreement. ASA is not the venue for evaluating scientific

ideas. Expert technical communities exist for testing such ideas. The expertise of ASA is to investigate the relationship of scientific consensus with our Christian faith. From this perspective, ideas that challenge heliocentrism or the age of the earth may not be an honest disagreement unless there are new data or analyses that have not been considered by the scientific community.

On the other hand, there is a large community of Christians for whom the scientific consensus on the age of the earth is not correct. Their ideas have not gained traction with the science community. If the ASA were to exclude them, then it could no longer provide an effective forum for discussion of widespread ideas in the church. But for the majority of Christians in the sciences, the age of the earth is a discussion of the past and an organization that would spend time on the topic is viewed with suspicion at best.

The opinion of what topic is controversial and what is not will always be a relative one. Adherents of ideas not accepted by the reigning consensus will always maintain that their ideas are honest disagreements. Those convinced by the consensus will soon dismiss the “controversy” as being beyond useful dialogue. The challenge with regard to such a broad range of opinions is to maintain a perspective of neutrality with quality of work.

For me personally, issues such as the age of the earth, evolution, human ancestry, biogenesis, and others are no longer controversial. But my opinion is not important. Each of these topics is still hotly debated within the body of Christ; therefore, in the ASA we must foster an attitude of openness to discussion of each of them.

Even if it hinders progress in elevating the ASA’s reputation that you mentioned before?

These need not be mutually exclusive. A willingness to discuss controversial opinions is different from attributing quality to pseudoscience. Granted, all parties must bring to the table the same willingness to engage in good scientific methodology. If the methodologies differ, then no amount of discussion will lead to convergence or to mutual respect. While scientific consensus is extremely important, it is not rigidly defined and must always be open to discussion. The methodology for challenging the consensus

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must be sound, however, and respectful dialogue requires a common agreement on such methodology.

The ASA has long been concerned with the question of origins, but it has also given considerable attention to other important issues that were sometimes overshadowed by the evolution question. What topics do you feel deserved (and maybe still deserve) more attention?

The question of origins, whether of the universe, life, species, or consciousness, is fascinating and will always capture our interest. I feel that it is best considered as a specific application of more fundamental questions. I hope ASA will be able to continue to focus on the primary questions and not miss the forest for the trees. For example, in my remarks at the farewell event on April 8, 2016, I shared four meta-questions that I believe get to the heart of the interaction of science and faith. I will briefly summarize them here.

1. *What does the Bible teach about science and history, and how does that teaching relate to our modern science?*

At one end of the spectrum, concordists believe that there is an accurate correlation between the original text of the Bible and the findings of modern science and history. Apologists for the inspiration of the Bible therefore point to examples of science in the Bible, while skeptics relish in identifying what they see as errors. At the other end of the spectrum are those who feel that the Bible is not a book of science, but a theological book with no necessary accuracy in science or history. Its record of historical events is interpretive rather than literal. Many arguments on origins are rooted in differences of concordism. Without coming to a better understanding of the basis for and the nature of concordism, little progress will be made on origins.

2. *What is the relationship between scientific and theistic explanations of our universe?*

At one end of the spectrum is a belief that these explanations are mutually exclusive. An explanation based on laws of nature removes the need for God, while a miracle by God defies scientific explanation. Mark Noll has termed this “univocity” and traces it back to John Duns Scotus of the thirteenth century. At the other end of the spectrum is the concept of complementarity, championed, for example, by Donald

MacKay in the middle of the twentieth century. Just as a boiling teakettle can be explained simultaneously by the thermodynamics of the heat source and by the desire to have a cup of tea, a scientific and a theological explanation can merrily coexist. Many of the origin debates seem to be centered on the univocality end of the spectrum. The inadequacy of scientific explanations to account for origins is portrayed as evidence for God’s involvement while skeptics trumpet a successful scientific explanation as evidence for the lack of a divine creator. The essence of the relationship between scientific and theological explanations must be resolved before the origins issue can be addressed. Similarly, this question leads to a discussion of scientific methodology and the role of methodological naturalism. To what extent can design be detected and a designer be inferred from scientific observations?

3. *What is the relationship between purpose and chance?*

The issue of divine providence and randomness has been given renewed importance with modern science. Historically, divine action was thought to be predominant in explaining phenomena. Then the rise of western science, from Galileo to Newton and on, led to the concept of a mechanistic universe, potentially describable with differential equations. The exception seemed to be biology where the apparent vitality of life defied description. Darwin filled in that gap by giving hope to finding a mechanistic explanation for biology as well. The dilemma posed by science at that time was how to understand divine providence in a deterministic universe. Was there room for God to carry out his will?

But then in the twentieth century, with the advent of quantum mechanics and the uncertainty principle as well as chaos theory and molecular randomness, the dominant scientific perspective veered from determinism to randomness and contingency. The central question became how divine providence might operate within the pervasive randomness that we see in nature. At one end of the spectrum, a Calvinist approach sees all randomness as illusory and divine providence as absolute. At the other end of the spectrum, process and open theology see divine providence as subject to randomness. Is there a center ground in which divine providence and randomness coexist? Evolutionists often point to the inherent role of randomness in evolution, arguing only about the degree and structure of randomness.

Too often, both skeptics and Christians see this randomness as antithetical to divine providence, casting evolution as dysteleology so that a belief in God's intentional action in creation must lead to a denial of evolution. This may be a common reason for the rejection of evolution. The issue of evolution cannot be resolved without first understanding purpose and chance.

4. *What does it mean to be human in the context of the world in which we live and in the context of being in the image of God?*

Finally, the broadest question that is most relevant to our daily lives is the question of human nature itself. As the psalmist wondered, what are humans that God should be mindful of them? As we learn with astonishment the vastness of the universe with hundreds of billions of galaxies, each with hundreds of billions of stars, what role could we possibly have? And then we consider that just on this planet Earth, there are tens of millions of species of life of which we are only one. We are closely connected and related to all the others and yet we are distinct. It appears that we are the only species to be aware of all the others and to recognize their interdependence. We also recognize that we can and do influence the environment on both the global and local scale. What responsibilities has God given us toward these species?

And as we turn our attention from the macroscopic to the microscopic, we are equally astonished at the world of atoms and molecules. Genetic information represents a major opportunity and responsibility to affect—or to refrain from doing so—the lives of many. As the findings of science open the door to gene-editing, can we or should we do it at the embryonic level?

Turning from the microscopic and macroscopic, we focus on the practical scale of daily living. How is our behavior in daily life affected by the details of our environment? How do we understand the relationship of our spirituality and our biochemical makeup? The intricacies of the brain and our behavior will long be a source of fascinating research.

Earlier you mentioned funding for new projects. Are there any on the horizon you can talk about?

Perhaps the most interesting possibility is to expand on the initiatives of the CiS and CSCA who recently

received funding for increasing the number and activities of local chapters. One of the most effective ministries of the ASA is to foster personal fellowship. Local chapters are one of the best ways to engage our members in dialogue with each other.

Who were some of the key and perhaps lesser-known ASA leaders that you hope current and future ASAers remember?

I am hesitant to mention names. There are so many that to begin would inevitably omit many who are equally worthy. I would suggest that all who have served as ASA Council members are very influential leaders who are often unrecognized. Also, the journal editors over the years, and the annual meeting program chairs.

You have given so much of your own time these last eleven years to the mission of ASA to encourage interaction between the best of the sciences and Christian faith. Has that been worthwhile?

Each time I hear the testimony of some member whose life has been enriched and whose faith strengthened through the work of the ASA, I realize that all the work is indeed worthwhile. Over and over we hear stories of students, early career, and established scientists who express their appreciation for the resources and the fellowship that we provide. Christians are in a minority in the science lab, and scientists are in a minority in the church community. Providing a means for these minority groups to find each other and share their interests is eminently worthwhile.

As you look back over the past few decades, how do you think the relationship between the sciences and theology is better because of the ASA?

I think that the understanding of the relationship between science and theology is much better today. The thoughtful stimulation from *Perspectives on Science and Christian Faith (PSCF)* and the effect of bringing leading thinkers in science and Christian faith to the broader community has had a tremendous influence. In many cases, the ASA has been a leader in generating dialogue on new ideas. Most of the earliest work on intelligent design, for example, was done by ASA members in ASA venues. The

Interview

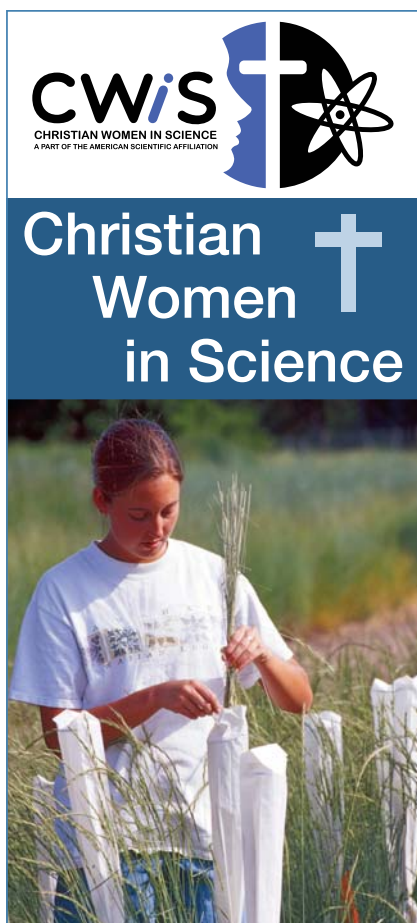
An Interview with Randy Isaac, ASA Executive Director, 2005–2016

latest emphasis on human ancestry and the historicity of Adam and Eve was most notably triggered by the ASA meeting in 2009 and the subsequent publication of our special *PSCF* issue on human genetics (September 2010).

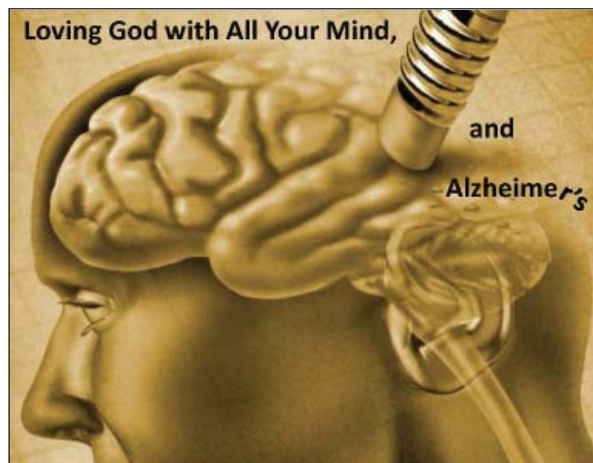
Do you have a specific hope for the ASA in the future?

My hope is that ASA will continue to maintain a focus on quality of research and ideas in the relationship between science and faith, with a primary emphasis on supporting and strengthening each other's commitment to Christ. The enabling of fellowship with each other is crucial to growing the body of Christ as it seeks to understand science. ☒

ASA Members: Submit comments and questions on this article at www.asa3.org→FORUMS→PSCF DISCUSSION.



CALL FOR PAPERS



Bryan C. Auday, PhD, is Professor and Chair of the Department of Psychology at Gordon College, Wenham, MA, and is also the founding director of the neuroscience program there. He recently completed, as co-medical editor, the *Salem Health Magill's Medical Guide*, 7th ed., vols. 1–5 (Hackensack, NJ: Grey House, 2014).

In his essay “Loving God with All Your Mind and Alzheimer’s,” at <http://www.csa.ca/wp-content/uploads/2016/06/Auday2016.pdf>, Auday describes for us the latest developments and challenges from Alzheimer’s disease for the sciences, our society, and Christian faith. The essay is intended as an invitation. Readers are encouraged to take up one of the insights or questions, or maybe a related one that was not mentioned, and draft an article (typically about 5,000–8,000 words) that contributes to the conversation. These can be sent to Auday at Bryan.Auday@gordon.edu.

Auday will send the best essays on to peer review and then we will select from those for publication in an Alzheimer’s science theme issue of *Perspectives on Science and Christian Faith*.

The lead editorial in the December 2013 issue of *PSCF* outlines what the journal looks for in article contributions. For best consideration for inclusion in the theme issue, manuscripts should be received electronically before **December 31, 2016**.



ENVIRONMENT

FROM NATURE TO CREATION: A Christian Vision for Understanding and Loving Our World

by Norman Wirzba. Grand Rapids, MI: Baker Academic, 2015. 176 pages. Paperback; \$19.99. ISBN: 9780801095931.

From Nature to Creation, by Norman Wirzba, is a call to become a radical Christian. Beginning with a vision of the world as “created, sustained, and daily loved by God” (p. 3), we are asked to live out the implications of this vision. In the first chapter, Wirzba builds the case for each of us to recognize ourselves as creatures. The author attacks modernity for its attempts to eclipse the existence of both creator and creature. Part of modernity is industrial agriculture wherein “land, plants, animals, and agricultural workers come to be seen as objects of control” (p. 17). One outcome of the creaturely approach to food is to stop the use of industrial chickens. Instead, we should allow them to be free ranging (p. 125).

The second chapter focuses on what constitutes a Christian understanding of nature. In this chapter (as in the entire book), the author does an excellent job of showing how what we name and narrate matters. For example, nature has been seen as sacred, as a place of temptation, as a place where one became an American, a place of individualism, a destination to visit, a storehouse, or a carefully managed park (p. 38). Each of these views entails a different approach to our stewardship of nature. For further exploration, I would recommend reading Christiana Peppard’s excellent essay “Denaturing Nature” in volume 63 of *Union Seminary Quarterly Review*.

In the third chapter, Wirzba sensitizes the reader to the complexity of perceiving nature. Along the way he highlights the noncompetitive relationship between God and creatures. Both perceptions lead to some interesting implications for practical Christianity. One of these implications can be seen in the next chapter where the fundamental importance of land and its care is emphasized. Wirzba shows how our connection with land is exemplified in Genesis and its account of Adam, Eve, and the garden: “... just as the land belongs to us, we also belong to it” (p. 117). This connection involves the production and consumption of food. A Christian perspective opposes today’s industrial food systems, which “presuppose the degradation of fields, plants, animals, and agricultural workers” (p. 121). Wirzba effectively uses today’s raising of corn as a quick case study and finds it failing in its ecological impact. The entire system (including consumers) is flawed.

The final chapter is entitled “Giving Thanks” and focuses on gratitude. I found it interesting and valuable to see the giving and receiving of gifts/thanks as a practice that nurtures and strengthens communities. Gratitude is further seen as a means to freedom.

From Nature to Creation is one volume in a series created “for a broad, non-specialist audience interested in the impact of postmodern theory on the faith and practice of the church (p. ii).” Wirzba’s book succeeds in its examination of today’s thought in relation to faith and practice, although this volume seems to question modernism more than postmodernism. While I think that every Christian could benefit from reading this book, it would be ideal for a congregational study group in which one chapter per week could be discussed. The leader of the discussion group could prepare for these meetings by reading *Introducing Evangelical Ecotheology* (see its review by Jeffrey Ploegstra in *PSCF* 67, no. 2 [2015]: 143–44).

I was uncomfortable with the use of the vocabulary of idolatry in chapter two and the use of iconic terminology in chapter three. Both uses seem to me to obfuscate the issues. On the other hand, they may serve to make the issues understandable and acceptable to Christians accustomed to such terminology. More substantially, I felt that Wirzba undervalued the insights into nature that ecologists are making. While it is true that “more knowledge or information about the earth is not, by itself, going to be of sufficient help” and that “what we most need are capacities that will help us love the world” (p. 6), I would argue that increasing knowledge should increase our awe of our environment, both for its dynamism and for the conflicts between individual and community. Perhaps troubling to some, but not to me, is what seems to be Wirzba’s stance that the created world is good and not in need of redemption. This allows, for example,

a tree, when seen by God, is never simply a vertical log with varying kinds of foliage or some amount of lumber. A tree is also, and more fundamentally, an incarnation of God’s love—made visible, tactile, and fragrant as a giant redwood or cedar of Lebanon. (p. 75)

Wirzba spends several pages guiding the reader toward a “disciplined perception” of seeing a creature as a “material manifestation of God’s wisdom and lover” (p. 87). Hopefully, as more and more Christians come to value creation they can make common cause with the modernists and postmodernists who also value the integrity of our planet and its ecosystems.

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Overall, I found the book to be a worthwhile read (I even ordered another copy to give as a present). With over 200 footnotes, Wirzba provides abundant opportunity for further study and reflection. I would recommend it to a Christian study group as a springboard for discussion.

Reviewed by Bruce E. Buttler, Professor of Biology and Dean of the Division of Science at Burman University, Lacombe, AB T4L 2E5.

BEING-IN-CREATION: Human Responsibility in an Endangered World by Brian Treanor, Bruce Ellis Benson, and Norman Wirzba, eds. New York: Fordham University Press, 2015. 242 pages, notes, index. Paperback; \$33.00. ISBN: 9780823265008.

Where do humans belong in the natural world? How are humans to interact with the rest of creation? With the advent of an impending environmental crisis on the horizon, if not already present, these questions become more significant for Christians and the rest of humankind to protect our environment and promote eco-awareness. In *Being-in-Creation: Human Responsibility in an Endangered World*, Brian Treanor, Bruce Ellis Benson, and Norman Wirzba present a collection of ten essays, the majority written by professors of philosophy or theology, that focuses on the Christian environmental perspective, stressing our “creatureliness” and intimate relationship with the rest of creation rather than exerting our dominion over the natural world.

In the introduction, Brian Treanor uses Lynn White’s essay, “The Historical Roots of our Ecologic Crisis,” to help Christians rethink Genesis 1:28:

[White’s essay] places the blame for our present ecological crises squarely on the Genesis account of creation and its subsequent interpretations, taking issue with the apparent claims of superiority implicit in doctrines of *imago dei* and with exhortations to domination and exploitation based on it ... (p. 3)

In essence, Treanor is arguing that Christian interpretation of this passage and the abuse of the environment “has led us squarely into the environmental crisis by suggesting that we have absolute dominion over the earth, including the right to use it in a gluttonous or profligate way” (p. 3). The essays comprising the remainder of this anthology aim to help the reader

rethink (or reconnect with) what it means to be human in the wider context of creation ... we will never live sustainably over the long haul unless and until we come to accept that we are just one type of creature among many fellow creatures, rather than omnipotent gods exercising capricious (and intemperate) dominion over the rest of the cosmos. (p. 13)

In his essay “Rowan Williams and Ecological Rationality,” Jarrod Longbons uses Rowan Williams’s view that the ecological crisis is “an opportunity that causes society to rethink life with a necessary ecological rationality that can help us rediscover some of the implications of the Christian doctrine of creation” (p. 37). Longbons also cites Williams to support his argument that humans and nonhumans have a reciprocal relationship, as both live in interconnectivity with one another:

To understand that we and our environment are alike in the hands of God, so that neither can be possessed absolutely, is to see that the mysteriousness of the interior life of another person and the uncontrollable difference and resistance of the material world are connected. (p. 41)

This rationale “reveals human relationship to and responsibility for nature, despite the two obvious differences between these two classes of creatures” (p. 41). At the heart of Longbons’s argument is the idea that society, as it becomes more materialistic, is apathetic to nonhuman life; however, rethinking the doctrine of creation calls Christians to bring nature closer to the Creator, as “Christianity compels humans to bridge God’s life and the world’s life” (p. 49).

Similarly, Norman Wirzba’s essay, entitled “The Art of Creaturely Life: A Question of Human Propriety,” focuses on the intimate relationship between humans and nonhumans. Wirzba begins by focusing on the beginning of human life in the Garden of Eden. Adam was created from the soil, and animals and plants are likewise largely dependent on the soil. Wirzba cites Wendell Berry, stating that “the soil is the great connector of lives, the source and destination of all ... Without proper care for it we can have no community, because without proper care for it we can have no life” (pp. 53–54). Wirzba is arguing that there is a circle of life that ultimately ends in the soil, and by failing to care for it, we are taking “a stance against creation” (p. 54). He finishes the essay using a gardener and a gardener as an example for creation in its entirety: “A gardener cannot simply impose her will upon the garden ... A gardener, in other words, gives herself to the garden so that the garden can flourish” (p. 72). As Christians, we are called to this type of self-offering to form a new relationship with God’s creation, not simply imposing our will on the world around us and exploiting God’s gift to humankind.

The idea of the divine call to care for creation is evident in Christina M. Gschwandtner’s “Creativity as Call to Care for Creation? John Zizioulas and Jean-Louis Chrétien.” She argues that Chrétien suggests

that “offering the creation to God in praise in hymnody is both a special task for human beings and a response to the divine call. Humans hence carry a responsibility for the world: they shelter, protect, and shape it” (p. 100). Zizioulas believes that this call “is not heard in the same fashion by other creatures,” making humans unique and set apart from the rest of creation (p. 103). If this is the case, then why do humans, especially Christians with a specific divine calling, exploit nature and destroy God’s creation?

Two of the final essays in the collection give Christians a few pieces of advice for re-entering this relationship with creation, whether or not that was their intention. Edward F. Mooney uses the comparison of a mall and a swamp to show the effect of our culture and society today in his essay entitled, “Reflections from Thoreau’s Concord.” He states that “to sense a swamp’s wonder is being intelligently alert there, finding sympathy for it and its creatures in a way that repays attention as the place brings you alive. The mall, in contrast, deadens the ‘you’ of the wild” (p. 135). Thus, humankind needs to find joy in nature, not in the ever-present materialistic nature of society and culture. This joy will lead to a deeper appreciation and understanding of the intimate relationship humans have with God’s creation.

In a similar fashion, T. Wilson Dickinson’s “Care of the Soil, Care of the Self: Creation and Creativity in the American Suburbs” attempts to revisit the doctrine of creation by going back to biblical passages (as in Isaiah and the Psalms) that contain deep, vibrant phrases about creation. As Christians made in God’s image, it is our duty to preserve this brilliant imagery rather than to destroy the earth. We need to be in an attentive relationship with the world around us rather than thinking “it can be fixed later” or “technology can solve that problem.” Dickinson also uses the example of mowing a lawn in an urban area, which depicts the idea of conformity to a “T.” Everyone’s lawn must be perfectly manicured and ever green; however, “the uniformity of the suburbs also makes those within it blind to the needs that exist outside its borders, as the ‘world of manicured yards conceals the blights of poverty, land degradation, and economic injustice’” (p. 166). As called beings by our Creator, Christians need to start noticing the invisible and stop using Genesis 1:28 as a biblical basis to abuse the gift of God’s creation.

This book is directed toward readers with an interest in philosophy and theology, as well as those concerned about the state of our environment. It requires careful reading with attention to detail and an advanced knowledge of philosophy and theology, or meticulous research to understand the

intricate theories presented. Many of the authors make key points that help summarize their beliefs; Treanor also summarizes each essay in the introduction, helping to give a broad overview if the reader could not understand the depth of theological or philosophical issues at hand. The overall goal is for humans, especially the target audience of Christians, to become more aware of the philosophical and theological basis for creation care. Multiple viewpoints on a single topic are often presented in a single essay, giving a broad Christian perspective that allows the reader to formulate their own opinions or dig deeper into a specific topic. Readers will likely find themselves intrigued by the arguments and will rethink their own opinions on the doctrine of creation as it relates to their lives.

Reviewed by Jordan Reinders, Graduate Research Assistant, Department of Entomology, University of Nebraska-Lincoln, Lincoln, NE 68583.



LOVING LATER LIFE: An Ethics of Aging by Frits de Lange. Grand Rapids, MI: Eerdmans, 2015. 159 pages. Paperback; \$19.00. ISBN: 9780802872166.

Loving Later Life is a book that could potentially be of interest to anyone, because everyone is faced, in theory, with the prospect of living later life. However, if the author’s contentions surrounding our great anxiety toward aging are correct, there is little chance that the book will become a bestseller. That being said, *Loving Later Life* is a significant contribution to the burgeoning conversation surrounding the ethics of aging. De Lange provides an honest and unflinching look at the realities of old age that our culture often ignores or attempts to paper over. He seeks to meet the ethical challenges surrounding aging through the nuanced development of a theologically informed ethics of care emerging from Jesus’s double command to love God and neighbor as oneself (Matt. 22:38-40). Along the way he engages with an intriguing mix of sources, including some that may not be familiar to English-speaking audiences, encompassing the fields of theology, philosophy, history, sociology, psychology, and gerontology. The book also includes a significant bibliography and detailed index.

After a brief introduction, de Lange begins the first chapter by asking why theological ethics should take an active interest in the subject of aging. The unprecedented aging of contemporary societies, the ethical blind spots of gerontology, theology’s unique ability to speak in a pastoral and existential voice, and the inadequacy of the prevailing ethical paradigms for

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addressing the problem of aging all contribute to the need for a robust theological ethics of aging. In his discussion of gerontology, de Lange introduces one of the recurring concerns of the book, namely, that while advances in gerontology have made an important contribution to slowing down the declines of old age, the corresponding emphasis upon “successful aging” often results in the marginalization and silencing of the frail elderly who have succumbed to the burdens of deep old age. De Lange concludes the first chapter by introducing the “ethics of care,” which has been in development since the 1980s by feminist philosophers and demonstrates striking affinities with theological ethics. In its acknowledgment of the dependence of human beings, its valuing of emotions, its questioning of the public-private divide, and its relational anthropology, the “ethics of care” offers a much more promising set of resources for grappling with the experience of the frail elderly than the agent-oriented, individualistic outlooks of the predominant ethical schools of thought.

The second chapter, entitled “The Ethics of Love,” is the conceptual center of the book. At the foreground stands Jesus’s great dual commandment, which demonstrates the inseparability and interrelatedness of the love of God, the love of self, and the love of neighbor. Particularly important for de Lange’s argument is the recovery of a proper understanding of self-love. The love of self emerges from the reception of the gift of life and serves as a stepping stone toward the love of the other. “Christian love,” de Lange insists, “is a communal event” (p. 42). As a result, a care relationship must be understood in dynamic terms, which involve the continuing challenge of seeking the genuine good for both the recipient of care and the caregiver (this may involve a degree of paternalism) while simultaneously respecting the personal autonomy of those receiving care.

The central contention of the third chapter is that because we do not love our own aging selves, we are unable to love the elderly. De Lange explores the cross-cultural phenomenon of “ageism” and the corresponding emotions of fear, hate, and disgust evoked by and directed toward old people. Drawing upon the “terror management theory” (TMT) introduced by social psychologists, de Lange suggests that

ageism may function as an anxiety buffer, keeping the awareness of aging and its inevitable decline and ending at a distance, by constructing a cultural worldview of growing older, in which everything that reminds of deep old age at the threshold of death is kept far away. (p. 77)

While the hypothesis that one’s attitude toward one’s own aging influences how one treats the elderly has attractive explanatory power, de Lange acknowledges that the correlation has not yet been empirically demonstrated.

The fourth chapter is animated by the question of what it means to love our aging selves. As recipients of the gift of life we are called to love the whole of life, even its latter stages. This love takes the form of a hearty affirmation of life which manifests itself in an ongoing posture of openness to joy. In no way does this deny the difficulties which characterize our relationship to our failing bodies; however, it does require acknowledging that health is not a goal in and of itself, but rather is instrumental for the realization of our humanity. Therefore, our bodies must be understood not only as a medical or physical puzzle, but also as a moral problem. Our relationship to our bodies may need to be renegotiated and reimagined if we are to faithfully traverse the territory of old age in a manner that heeds the commandment to love ourselves. Aging also presents challenges for the self-esteem of the elderly. De Lange insists that “helping old people care about themselves is the most fundamental and elementary form of care of the elderly” (p. 96), and he briefly presents several strategies for advancing this end. Old age is the terrain over which the continuing journey of self-realization traverses, which resonates with the reflections which close out the chapter on the motif of life as a pilgrimage in the Christian tradition.

Fittingly, de Lange concludes the book with a chapter entitled “Love for Aging Neighbors.” He explores three dimensions of love for the elderly: love as attraction, love as attachment, and love as compassion. In the first instance, de Lange seeks to advance an argument for the beauty of old age. In the second, he explores the parent-child relationship and posits friendship as perhaps the best model for a relationship that is ultimately *sui generis*. With respect to the third, de Lange draws upon the parable of the Good Samaritan to elucidate the necessity of suffering with the elderly in a way that both respects the dignity and restores the humanity of the recipient of care.

I offer the concluding thoughts and questions out of respect for the author’s contribution and a desire to continue the important conversation he has begun. De Lange has offered an honest and compelling affirmation of life in the midst of old age. However, those looking for extensive discussion surrounding what are commonly framed as end-of-life ethical issues will be disappointed. Furthermore, while the question of what it means to age well is subject to intense scrutiny, the related, but distinct, question of what

it means to die a good death is scarcely addressed. There is an apparent tension which runs throughout the book between understanding love (including compassion, the perception of beauty, and the experience of joy) as a duty on the one hand and as an ecstatic event on the other, into which one gets swept up. To be fair to the author, this tension is apparent throughout both the philosophical and Christian theological traditions. How this tension is to be negotiated from de Lange's perspective is not entirely clear, although the concept of disposition reflected in such phrases as openness and posture implies that it might have some type of mediating role.

While the current work addresses the question of why we must love our aging neighbor as our aging selves and offers suggestions for how to do so, there is perhaps a lacuna with respect to the question of how we can become the type of people who love our aging neighbors as our aging selves. While the absence of thick description of the work of the Holy Spirit within the life of the church may be a necessary consequence of the author's explicit decision to write a book intended to be persuasive to believers and unbelievers alike, a fuller discussion of this theme could perhaps help to address the concern highlighted a moment ago. While these reflections could elicit a diversity of responses, what does seem apparent is that in *Loving Later Life*, Frits de Lange has made a timely and necessary theologically informed contribution to our understanding of the ethics of aging.

Reviewed by Robert Dean, Tyndale Seminary, Toronto, ON M2M 4B3.

THE CIRCLE by Dave Eggers. New York: Vintage Books, 2014. 497 pages. Paperback; \$15.95. ISBN: 9780345807298.

How much privacy are we willing to give up in order to reach other desirable goals? *The Circle* is a novel that explores this question, presenting a dystopian near-future that is disturbing due to its plausibility.

The Circle is a high-tech company that is aggregating internet accounts and searches into a single account. The company is expanding into almost every sphere, often with social justice or enhancement of society as goals. It is working to eliminate all crime, preserve the environment, and make daily life more convenient. The novel follows Mae, a new hire at the company. She was recommended by her college roommate, Annie, who is fairly high up in the company's hierarchy.

The Circle seems to be a dream company to work for. The campus has everything you need, including free dorm rooms. There are nightly social events

and extensive use of social media to link the circles together into a community. But the social media is not just a bonus available for employees; it is an expectation. If your activity rating is too low, you will get a visit from your supervisor asking why you are not satisfied with the company.

As time progresses, Mae's work area starts sprouting multiple video screens, close to ten by the end of the book, each demanding that she monitor and respond immediately. All this while she is working as a customer experience representative. And there are expectations for that work as well. After each customer case, there is a survey. If she does not get a score of 100, she has been taught to do a follow-up with the customer to try to raise her score. If her daily average is below the high nineties, she will need to redouble her efforts. This reminds me of the email surveys I receive that list the options "excellent/exceeded expectations" and "not excellent" — there is no option for "met my expectations." If it does not exceed expectations, it is a failure, even if I just ask a question that gets answered, as I knew it would.

Mae's early days in the company made me think about how cults acclimate their new members. My other early comparisons were with two of C.S. Lewis's writings. The first is a transcription of a lecture entitled "The Inner Ring" (<http://www.lewissociety.org/innerring.php>). It discusses our desire to be part of the elite inner ring in a group, to be part of the power circle. The other work is his novel *That Hideous Strength*, which addresses the ideas in "The Inner Ring" and in *The Abolition of Man* in story form. It details how a person can be lured into an organization that appears to have beneficial goals, but may actually cause great harm.

Mae is excited to work for this progressive company and is willing to change in order to fit in and become important.

The comments that follow divulge plot points that are best left unseen if you plan to read the book. There is one other comment I should make before I discuss these plot spoilers. Throughout the book, Mae has a number of casual sexual encounters, some described in detail. I am not sure whether they are there to assist the exposition of her character or just to sell more books. Perhaps it is a mixture of the two.

I will let the interested reader explore for themselves the motivations of the three founders of the Circle. Instead, I will discuss two related values that are core tenets of the Circle.

The first is that nothing should ever be deleted. *All* of human history should be available to everyone.

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The second is that we should be completely transparent. After the Circle convinces most politicians and public servants to start wearing body cameras for their entire waking day, three-minute bathroom breaks excepted, Mae becomes a Circle early adopter, broadcasting all her interactions with the world and her millions of rabid followers. Mae's parents are collateral damage to her desire to make the entire world transparent. In a related project, the Circle uses embedded chips to enable parents to monitor their children all the time, including a constant stream of medical data—all the better to catch problems early.

Mae's commitment to transparency is tested when one of her sexual encounters appears on an uploaded video made without her permission by her partner. And the Circle will never delete anything.

The logical conclusion to all this occurs when the Circle volunteers to help raise the voting percentages by having the government hire them to make voter registration mandatory and, at the same time, tie the voters to the Circle account. Now voting becomes mandatory—all one's electronic feeds stop until one votes. This saves billions of dollars a year in costs for the government, and as a likely consequence will reduce important decisions to popularity polls among the uninformed. This mandate also helps to "close the circle," making the corporation essentially the sole source of all information and power. Those who try to escape are easily found using the worldwide system of surveillance cameras and real-time crowd sourcing as people all over the world are told to help track down a dissenter.

At one point Mae has a short encounter with one of her followers, a former divinity student. He says,

You and yours at the Circle—you're gonna save all the souls. You're gonna get everyone in one place, you're gonna teach them all the same things. There can be one morality, one set of rules. Imagine! Now all humans will have the eye of God. You know the passage? "All things are naked and open to the eyes of God." Something like that. You know your Bible? Now we're all God. Every one of us will soon be able to see, and cast judgment upon, every other. We'll see what He sees. We'll articulate His judgment. We'll channel His wrath and deliver His forgiveness. On a constant and global level. All religion has been waiting for this, when every human is a direct and immediate messenger of God's will. (p. 398)

This set of values is a perversion of ideas found in scripture. First John 1:7 tells us that if we "walk in the light as he himself is in the light, we have fellowship with one another, and the blood of Jesus his Son cleanses us from all sin." This seems to encourage

us to live lives for which we would not be ashamed if others see what we do or think. It does not say that forced transparency is the means by which we achieve inner goodness, as the Circle asserts.

The Circle's view of community seems to be heading toward uniformity in the sense that everyone's individual interests and connections are mediated by the Circle's technology. This seems a poor replacement for the promise in 1 Corinthians 12:12-13:

For just as the body is one and has many members, and all the members of the body, though many, are one body, so it is with Christ. For in the one Spirit we were all baptized into one body—Jews or Greeks, slaves or free—and we were all made to drink of one Spirit.

If the author's intention was to make the reader question how easily we give up privacy (read the permissions you are giving the Apps you install on your smart phone if you are skeptical) in order to gain some other desirable result, he succeeds admirably. There are some nice literary touches involving side stories that work well. The book as a whole presents a future that is both believable and scary. However, despite the engaging story and the important issues of privacy that are raised, I found the underlying worldview portrayed in the story to be quite sinister.

Reviewed by Eric Gossett, Department of Mathematics and Computer Science, Bethel University, St. Paul, MN 55112.



HISTORY OF SCIENCE

IN THE LIGHT OF SCIENCE: Our Ancient Quest for Knowledge and the Measure of Modern Physics by Demetris Nicolaidis. Amherst, NY: Prometheus, 2014. 266 pages. Paperback; \$19.00. ISBN: 9781615922253.

At first look *In the Light of Science* is a book with a somewhat intriguing title. Its scope ranges from a discussion of early *Homo sapiens* hunter-gathers to the standard model for particle physics, and then on to string theory—all in the context of seeking linkages to an array of ancient Greek philosophers. Nicolaidis maps out three landmarks for humanity: (1) the culturally explosive event of urbanization (about 10,000 years ago), (2) the Greek intellectual revolution and the birth of science (some 2,600 years ago), and (3) the scientifically extraordinary modern era of quantum physics, relativity, and the standard model for particle physics.

The book comprises two parts, including a prologue and epilogue: Part I (78 pages) seeks to provide a brief history of the development of humankind,

passing through urbanization and the mythological era in which the author pays some attention to the relationship between religion and science, and the birth of science. Part II (130 pages) seeks to link pre-Socratic thought to concepts in modern physics. The linkage between the two parts is provided by a dialogue between Greek philosophers in the form of a brief “dream sequence.”

The author’s thesis seems to be that Greek thinkers provided, at least in essence, many of the fundamental concepts that form the foundation of certain aspects of modern physics, invented science, and scientific thinking. These events all occurred through the utilization of language and the seminal principles of Greek civilization, and under the impact of urbanization. There is the well-known phrase, “If I have seen a little further it is by standing on the shoulders of giants.” Nicolaides seems to be saying that modern physics stands on Greek shoulders.

Nicolaides seeks to provide a book which is readable, but in places he oversimplifies the language and makes assertions that are not adequately justified by his citation of supporting source materials. For example, the simplification of vocabulary can be seen in his use of the term “light,” rather than electromagnetic radiation, in the context of the discussion of 3K background radiation, the residual of the big bang. In his discussion of the migration of early peoples, there are, in most cases, estimated dates provided, but no date is given for the entry of people into the Americas. In his discussion of early pre-humans, specifically “Lucy,” Nicolaides states that it can be seen that “two legs were starting to evolve into hands” and that there was an iterative relationship between toolmaking, thinking, technology and intellectual development (p. 215). It has recently been reported that the oldest stone tools on record date to 3.3 million years ago (*Nature* [2015]). This pushes back the known date of such implements by 700k years, and such items were produced by “proto humans” long before the advent of modern humans and pre-dating Lucy.

The author’s treatment of early humans and precursor species is thin, and there are a good number of books which could have been cited to provide more depth for the evolution of *Homo sapiens* and the history of humankind. Examples include Richard Leakey’s *The Origin of Humankind* (Basic Books, 1994) and the early chapters in Richard Dawkins’s *The Ancestor’s Tale* (Houghton Mifflin, 2004). A recent summary of many of the topics touched on in the story of the transition “from chaos to order” (Part 1) is covered in a recent *Scientific American* special issue, “The Evolution of Your Body” (2015). The vast

majority of the cited references in this issue are to literature published well before the Nicolaides book was published.

Clearly the author has great familiarity with the key Greek philosophical concepts which he compares and contrasts with ideas encountered in modern physics. Examples of these are seen in the discussion of Pythagoras and numbers, Parmenides and oneness, and Democritus and atoms. Nicolaides discusses how the thoughts expressed by the Greeks seem to relate to concepts in physics. However, in several cases, the analogies and parallels between Greek thought and modern physics are, at least for someone with my background, a stretch. The Enlightenment received very brief treatment with only passing reference to key figures such as Newton, Copernicus, and Galileo. There is also no real discussion of the motivation of Enlightenment theists who sought to understand God’s creation. The Enlightenment clearly revisited some Greek ideas, but Nicolaides jumps from Greece to the modern era and does not connect the dots in his train of thought or in the development of concepts. A much more complete treatment of the development of concepts in physical science, which fills some of the gap found in the current book, is provided in the classic text *The Origins and Growth of Physical Science*, vols. 1 & 2, edited by Hurd and Kipling (Pelican, 1958/1964). The analysis by Nicolaides is very “western” and, more specifically, Greek-centric. If one takes a wider view, there are clearly astronomical insights to be found in a number of other civilizations (see E. C. Krupp, *Echoes of the Ancient Skies*, Harper & Row, 1983).

There is a tantalizingly brief discussion of the theory of everything and several references to the Higgs boson, as well as to concepts of dark and ordinary matter (which is acknowledged to make up only about 5% of the “stuff” in the universe). Toward the end, there is speculation with regard to the topic of time travel, which has recently received better popular treatment in the TV series *Cosmos* in its reworking of the content of Carl Sagan’s book of the same title. The series also ranges much farther and wider, considering the total number of stars and planets, and also speculates about the possibility of habitable planets in other parts of the universe.

I was left wondering if the roots of modern physics, quarks, leptons, string theory, and the like, which have all been developed in the past one hundred years, can truly be traced back to thoughts by Greek philosophers. For me it was an interesting read, with my eclectic background: degrees in physics and an enduring interest in the history of science and its interplay with faith, the origins of humankind, and

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the advances in astrophysics and atomic and nuclear physics. That said, this book may encourage the student or more general reader with an enquiring mind to look more deeply into fundamental physics—to move our understanding beyond the standard model toward a theory of everything, or perhaps causing a shift in thought as great as that which occurred with the formulation of general relativity.

However, I am left asking, “Who really is the audience for this book?” The general or high school-level reader really needs a prerequisite or a primer on modern physics, the standard model with its quarks, leptons, and the like. Such treatments can now be found on the web: for example, Dan Bloomberg, *An Elementary Primer on Elementary Particles and Their Interactions*, Leptonica (2014), <http://www.leptonica.com/particle-primer.html>. There is an opportunity for the book to be used as an introduction to aspects of the philosophy of physics or in a “spirit of physics” seminar/discussion class at freshman or higher level. Although this is a text with some unique thoughts, I fear that the more general readership will be somewhat limited.

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CREATIONISM IN EUROPE by Stefaan Blancke, Hans Henrik Hjermitsev, and Peter C. Kjærgaard, eds. Baltimore, MD: Johns Hopkins University Press, 2014. 276 pages, including notes and index. Hardcover; \$39.95. ISBN: 9781421415628.

Creationism is often thought of as an American affectation. From influential nineteenth-century theologians such as Princeton Seminary professor Charles Hodge, to grand public spectacles such as the 1925 Scopes “Monkey” trial, to present-day organizations and institutions such as Answers in Genesis’s Creation Museum, there has been an almost continuous tradition in America of religious opposition to Darwin. The history of American creationism has been most ably told by Ronald L. Numbers, who in the Foreword to this present volume writes, “Until fairly recently the notion of a history of creationism in Europe would have struck many readers as preposterous” (p. vii). *Creationism in Europe*, edited by Stefaan Blancke, Hans Henrik Hjermitsev, and Peter Kjærgaard, shows the history to be both longer and more diverse than has been previously understood.

Most of the book’s chapters are devoted either to individual countries or to a few related ones. Each chapter then tells a national story about a state and its specific engagement with questions of evolution and religion. Taken individually, each of these chapters

offers a detailed account of the people and organizations that promoted antievolutionary thinking, the religious geography in which creationism spread, and the ways that creationist thought influenced the public life of a nation. Many of these chapters would, on their own, serve as excellent introductions to the science-religion landscape of a particular place. More importantly, in reading across several of these chapters, some common themes begin to emerge. In many cases, the narrative follows a common pattern: Homegrown varieties of creationism flourished in the late nineteenth and early twentieth centuries, often defined along strict religious denominational lines; but, in most places, these were minority views or had largely faded away by WWII.

In the postwar era, American organizations such as the Institute for Creation Research, Answers in Genesis, and the Discovery Institute helped fuel a creationist resurgence that continues with varying degrees of success today. In addition to this general pattern, the history of creationism in many of these countries also evolved in synchrony with larger national political changes—such as the ending of communism in the Soviet Union, East Germany, and Poland in the 1990s; or the democratization of Spain, Portugal, and Greece in the 1970s. In these cases, the flourishing of creationism was also shaped by the liberalization of religious practice and expression.

Many of these central chapters, by focusing on specific national contexts, do not really address the question of creationism as a European phenomenon. At a time when the idea of Europe as a political, cultural, and economic entity is being openly debated in many of the countries featured in this book, the question is ever present: how much is the creationism described in these countries part of a common European story? As the title of the Introduction asks, is this a story about creationism in Europe, or about a European creationism? Blancke, Hjermitsev, and Kjærgaard opt for the former. Taking note of what they term the “North American Roots of Creationism,” and observing the general lack of a common creationist experience shared across these nations, the editors conclude, “one cannot talk about European creationism. Creationism in Europe is so many different things to different populations for different reasons” (p. 9).

The rejection of a coherent European narrative makes the selection of the countries represented in the volume all the more important. Of course, it is unreasonable to expect treatment of every European country, but the selection is at times uneven. Neither Italy nor Ireland is represented, and Northern Ireland is scarcely mentioned in the chapter on the UK.

A chapter on “Catholicism” focuses primarily on the doctrines of the Roman Church rather than on any majority Catholic countries, but this still overlaps in part with both the chapter on Spain and Portugal and on Poland. Numbers notes in the Foreword that “the most surprising pattern ... is the generally rising rate of creationist sentiment as one moves east, into the former communist (and officially atheistic) countries of the Eastern bloc” (p. xiv). Nonetheless, Western and Northern Europe are far more represented in the book than are other regions. Romania’s recent history of creationism is not given its own chapter, but it is mentioned in Kjærgaard’s chapter on “The Rise of Anti-Creationism” (p. 237).

Perhaps the focus on individual nations is especially telling at a time when the very idea of Europe is being questioned by factions from both ends of the political spectrum. If creationism is seen not just as a marker of religious identity, but also as something that has roots in nationalism or in resistance to a transnational and transreligious state control, then European creationism is perhaps more like its American cousin, which has flourished in an environment dominated by rhetoric about local control of education and states’ rights. The editors do not explain the rationale for their selection of countries, yet they begin with an event that is unequivocally European.

Resolution 1580, titled “The Dangers of Creationism in Education,” was passed by the Council of Europe Parliamentary Assembly in 2007. In warning against such dangers, the resolution most notably expressed concern about “the possible ill-effects of the spread of creationist ideas within our education systems and about the consequences for our democracies. If we are not careful, creationism could become a threat to human rights.”¹ Perhaps one of the most striking things about that resolution is its representation of “present-day creationists, most of whom are of the Christian or Muslim faith.” This implies that Islamic creationism is coequally present in Europe as are Christian versions, despite lacking the long and complex history that is described in this book. Indeed, the proximate cause of the adoption of Resolution 1580 was the publication and mass dissemination of Turkish creationist Adnan Oktar’s (Harun Yahya) *Atlas of Creation*. This in itself suggests that if there is something coherently European about creationism in Europe, it is in the way that creationism’s condemnation, in the language of a threat to human rights, no less, follows swiftly upon the heels of the first organized version of Islamic creationism in Europe. The book’s chapter on Turkey focuses extensively on Oktar, making him not only the face of Turkish

creationism, but also, by proxy, of all Islamic creationism in Europe.

As Islamophobic policies in European nations exacerbate the plight of refugees from majority Muslim countries, and as Muslim populations already resident in many European nations are vilified in resurgent politics of nationalism, nativism, and racism, the elevation of Islamic creationism to a perceived threat to human rights in Europe, and the depiction of it as equally threatening in Europe as all Christian creationism put together, is an aspect of creationist experience that is not just unique to the countries of Western and Northern Europe, but is also distinctly European.

The “Europe” in this book is undertheorized, and in declaring that there is no essential “European creationism,” the editors abdicate the need to define a cultural vision of Europe that informs their undertaking. More explicit consideration of the idea of Europe may be of special concern to North American audiences who claim Europe or a historically imagined Christendom as part of their intellectual and cultural pedigree. Despite this, the multinational picture of creationism in Europe, taken altogether, yields something more than its constituent chapters do on their own.

Reference

¹<http://assembly.coe.int/nw/xml/XRef/X2H-XrefViewPDF.asp?FileID=17592&lang=en>.

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NEWTON’S APPLE AND OTHER MYTHS ABOUT SCIENCE by Ronald L. Numbers and Kostas Kampourakis, eds. Cambridge, MA: Harvard University Press, 2015. 287 pages. Hardcover; \$27.95. ISBN: 9780674967984.

In *Newton’s Apple and Other Myths about Science*, Ronald Numbers and Kostas Kampourakis have assembled a series of essays that attempt to debunk common misconceptions that are taught in science classrooms. This collection serves as a companion piece to *Galileo Goes to Jail and Other Myths about Science and Religion* (Harvard University Press, 2010), which was also edited by Numbers. While the earlier work focused specifically on faulty interpretations that directly impact the modern debate between science and religion, this volume seeks to improve science literacy and generate an understanding of the “nature of science” by answering questions such as: How is science done? What questions do scientists ask? and, What type of knowledge do they produce? While not its focus, *Newton’s Apple* does engage with

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religion and the role of the church where those interactions are critical to the historical narrative; however, unlike the previous volume, these interactions are not the main focus. Numbers is a renowned historian of science and medicine, having written or edited more than thirty books. Kampourakis's interests in science education meld with Numbers's expertise to make *Newton's Apple* noteworthy.

As with all compiled volumes, this one is built upon the expertise of its twenty-seven individual contributors: these include Peter Harrison, Michael Ruse, Bruno Strasser, Mansoor Niaz, and Patricia Fara. The slate of authors is impressive, each author bringing their own personal expertise to bear on one specific commonly taught idea that lacks historical accuracy. The questions in this compilation range from the general (e.g., that religion has typically impeded the progress of science) to the specific (e.g., that the Millikan oil-drop experiment was simple and straightforward) and are organized into four sections: Medieval and Early Modern Science, Nineteenth Century, Twentieth Century, and Generalizations.

The importance of *Newton's Apple* lies in its honest ability to define and provide historical depth and context to the events surrounding commonly taught myths. Strasser defines a myth in his essay as "a way of collectively expressing something about values, beliefs, and aspirations, even though, taken literally, the content of the myth is not true." He continues to say that "myths not only (imperfectly) reflect the past but also shape the future. For this reason, explaining how and why a myth crystallized in a particular community at a specific time in history is often more illuminating than simply debunking the myth by showing its inaccuracies" (pp. 179-180). Both this volume and *Galileo Goes to Jail* serve this role well by providing succinct, historically informed essays aimed at explaining a variety of myths that have been shaped over time to serve the purpose of their advocates, rather than conveying precise historical events.

Overall, the essays included in this volume address important myths that continue to hinder the public understanding of science and its history. *Newton's Apple* questions myths such as the oft-taught idea that Columbus believed in a flat earth and that a falling apple led Newton to postulate the Law of Gravity. A number of essays are devoted to various aspects of evolution, as postulated by Charles Darwin and interpreted by others. Historical context is also provided for more modern myths, including the role of *Sputnik* in spurring changes to scientific education in the United States and the story that medical practice was revolutionized when Linus Pauling

discovered that there was an underlying molecular basis for sickle-cell anemia. Perhaps the most compelling essays, however, are the four included in the final Generalizations section, which provide a useful overview of the field and the major reasons for trying to debunk these myths in the first place. In a classroom setting, engaging these final essays first might provide a useful foundation for the discussion of the other more temporally placed myths, which occur earlier in the volume. With almost thirty percent of the essays in this compilation addressing some form of Darwinian evolution, there are sections of the collection that feel a bit repetitive; however, as evolution and Darwin in general remain major points of debate on the modern stage, the inclusion of so many different myths in relation to this topic may be justified.

I believe that this book has brought together the right group of scholars to address, in intelligent yet accessible ways, the stories that many of us were taught and that we continue to teach our students today about science's most famous characters and the way scientific advancement occurs. Engagement with this volume stands to improve scientific accuracy and the general understanding of how scientists actually do science. While both *Newton's Apple* and *Galileo Goes to Jail* address some of the same myths, it does seem that the change in focus from "science and religion" to "the nature of science" renders this latest volume of value, especially to those working in science education at all levels who wish to ensure that their students are capable of interacting with the modern world in an enlightened and accurate way. Context matters, and this volume does an excellent job of placing each of the presented myths within its historical context and identifying important historical details, which in many cases have been skewed for rhetorical, pedagogical, or, occasionally, for more malicious reasons. Regardless of the motivation, it is time to reclaim scientific history, and *Newton's Apple* serves as an important step in that process.

Reviewed by Carolyn E. Anderson, Department of Chemistry and Biochemistry, Calvin College, Grand Rapids, MI 49546.

HUXLEY'S CHURCH AND MAXWELL'S DEMON: From Theistic Science to Naturalistic Science by Matthew Stanley. Chicago, IL: University of Chicago Press, 2015. 364 pages, including notes, bibliography, and index. Hardcover; \$45.00. ISBN: 9780226164878.

That naturalism functions as a guiding point of view or philosophy for the practice of modern science has become a truism. Naturalism is critical of any appeal to the supernatural or of any being or idea that smacks of the transcendent. But how, you may ask, did so many scientists become accustomed

to or convinced that any appeal to God talk is out of bounds in an explanation of natural events? This well-researched book by Matthew Stanley, associate professor at New York University's Gallatin School of Individualized Study, provides an answer as to how British scientists came to believe that "the defining characteristic of science is its *naturalism*" (p. 1).

Stanley provides a clear-eyed look at scientific practice in Victorian Britain by tracing the expulsion of God language, religious ideas and values from scientific discourse. Stanley is interested in showing that the rise of naturalism and the displacement of theistic science has a history; naturalism did not arrive surreptitiously, nor was its rise inevitable, but scientists were passionately involved in arguing for the benefits of naturalism, as well as raising potential objections to its ultimate success. Stanley fixates on two intellectual giants of nineteenth century British society: Thomas Huxley (Darwin's acknowledged agnostic bulldog), and James Clerk Maxwell (the great "evangelical" unifier of electricity and magnetism). Stanley also gives a close reading of some of their contemporaries. Two, of many, quotations typify the underlying tension between Maxwell and Huxley's interpretations: Maxwell, "I have looked into most philosophical systems and I have seen that none will work without a God," and Huxley, "Extinguished theologians lie about the cradle of every science."

At first blush, the title of the book seems rather forced: any association of Huxley with "church" seems outlandish, and to suggest that Maxwell's demon (or Maxwell's use of the metaphor of a railway "pointsman") might be appropriate in a discussion of theistic science and naturalistic science, seems equally out of place. Stanley wishes to mollify the "warfare thesis" between science and religion by suggesting that "valence values" (values common to theists and naturalists) undergird the Victorian transition to naturalism. "Practices were the basic methodological assumptions and goals of science itself" (p. 5). These values help bond scientists despite deep-seated differences as to the meaning of, say, the uniformity of nature.

In addition to the Introduction and Conclusion, seven chapters form the heart of this book. The second chapter, in particular, "The Uniformity of Natural Laws," is crucial to Stanley's argument. Stanley asks, "How can it be that uniformity was seen as rooted in theism in the early Victorian period, when it was presented as an enemy of theism by the end?" (p. 34). He concludes, "The shared value of uniformity allowed for a transition between the two groups, but was surely not sufficient" (p. 79). In chapter 7, "How

the Naturalists 'Won,'" Stanley details the events which pushed the transition in a definitive direction. Huxley's efforts to publicize the advantages of embracing scientific and secular ideas, to advantage the cultural preeminence of men of science, to argue that there is but one kind of knowledge and but one method of acquiring it, and to present naturalism as an alternative to Christianity rather than an attack upon it, won the day. As natural theology moved ever closer to the near identification of God with the uniformity of Nature, there was little to choose between the devout and the agnostic. The rise of Huxley's church, a secular (agnostic) religion which challenged the Anglican institutions of the day as well as its intellectual theology, became ever more difficult to counter.

Although there may have been differences concerning the extent, interpretation, and applicability of the uniformity of nature, common practices seemed to trump. However, in the application of scientific concepts to human beings a fault line developed. As Stanley expresses it in the introduction to chapter 6, "Free Will and Natural Laws": "Theistic and naturalistic scientists had been able to find common ground in a lawful nature (chap. 2), the role of hypotheses (chap. 3), educational systems (chap. 4), and intellectual freedom (chap. 5). But free will was the fault line from which they began to diverge profoundly" (p. 179). Huxley, and other closely allied scientific naturalists, extended the scope of the uniformity of nature to the mind, considering both animals and humans to be *automata*. For Maxwell, this was a bridge too far. He thought humans had a soul and clearly displayed free will. Stanley describes Maxwell's ingenious efforts to safeguard free will in a world described and prescribed in terms of mechanical laws governing the motion of material particles. For Maxwell, the soul was like a railway "pointsman" (or demon). This argument was ultimately to fail due to considerations of the Second Law of Thermodynamics. Even the demon (or "soul") expends some minimal energy in its actions.

For Maxwell and his theistic colleagues, ontology superseded methodology. They adhered to an ontological richness which saw God's faithful governance of creation in law-like terms. Methodology was secondary. The prospect of a nascent "methodological naturalism," they thought, would eventually eradicate all sense of the mysterious and the divine. A few decades later, the suggestion from quantum physics of the uniqueness and individuality (indeterminateness) of physical entities would comport much better with the theists' belief in the radical character of all creatures and their dependence on the Creator.

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For anyone who wants to read an insightful and novel way of understanding the rise of naturalism in the English-speaking world, this book is invaluable. I highly recommend the book and encourage the reader to take its historical lessons to heart.

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



RELIGION & SCIENCE

RE-VISION: A New Look at the Relationship between Science and Religion by Clifford Chalmers Cain, ed. Lanham, MD: University Press of America, 2015. 164 pages. Paperback; \$29.99. ISBN: 0761865462.

As someone who has long been interested in the relationships between faith and science, I was intrigued when I saw that this book claimed to provide a “new look.” Sadly, not only is this “look” not new, but its depiction of God is not one with which I or many *PSCF* readers would be comfortable.

Written by various faculty members at Westminster College of Missouri, the format of the book is promising enough. Clifford Chalmers Cain is Professor of Religious Studies and the primary author of the book. Other chapters, written by colleagues in the sciences and philosophy at Westminster, deal with “hot button” issues in religion and science: the Big Bang, evolution, nature-nurture, and intelligent design (ID). Cain responds to each of these chapters, showing how in his view religion interacts with these issues.

Those familiar with the literature on religion-science interactions will know Ian Barbour’s four models: conflict, independence, interaction, and integration. Cain acknowledges Barbour but instead chooses the models of conflict, contrast, and conversation (p. 7). Cain rightly rejects the conflict model, which distorts the evidence and has plagued the study of religion-science interactions. Likewise, he points out the impossibility of the contrast model, which holds that religion and science are independent. He sees the most promise in conversation between religion and science, in which each can inform the other to advance potential mutual knowledge (p. 9). In omitting the integration model, Cain evidently sees science as free from worldview presuppositions. However, in his response chapters, Cain absorbs the naturalistic worldview espoused by these authors and accommodates it into his theology. Cain holds to process theology, which denies God’s omnipotence and omniscience but argues that God acts by persuasion, not decree. Thus the conversation between religion and science seems more of a capitulation on the part of religion than a conversation, which Cain

acknowledges but sees as more of a correction than an acquiescence (p. 15).

The Big Bang implies a beginning and thus someone who began the process. In his discussion of this topic, Cain confuses God’s omnipotence with the speed of his action and sees the drawn-out process of creation as evidence for process theology (p. 38). Likewise, the anthropic principle is thought to be guided, not directed, by the God of process theology, even though the form of this guidance is not given.

One theological question raised by evolution is how the randomness of evolution relates to God’s providential hand. When the biologist McNett states, “It requires no supernatural guidance or great cosmic direction for its operation. It cares not a whit for our destiny, hopes, or salvation ...” (p. 57), he is making a theological statement, not a scientific one. Cain, in his response, affirms the doctrine of providence but cannot reconcile an omnipotent God with the naturalistic processes of evolution or with human freedom (78 ff.). Instead, he again invokes the impotent God of process theology. By contrast, I would argue that God’s omnipotence is maintained in the doctrine of concurrence, which holds that God is acting directly (God’s omnipotence) and we are acting (our freedom).

In his response to the chapter on the nature-nurture question, Cain rightly criticizes genetic determinism and acknowledges the role of environmental influences that shape who we are. Cain asserts that the failure of genetic determinism gives room for the human freedom that is necessary for religion’s standard of morality (p. 116). Maybe so, but what then does account for human freedom? When we are converted and transformed by the renewing of our minds (Romans 12:2), do these changes come about by our actions or God’s?

In the chapter on ID, the philosopher Geenen’s claim (equating ID with creationism) that ID attempts “to make room for God’s causal role in the physical and biological world” (p. 140) is a questionable statement. One could claim that God created the world solely through natural processes, but Geenen rejects any causality by God. Does this also exclude the persuasive God of process theology? Moreover, if the God of the Bible performed miracles in redemptive history, what about miracles in creative history? Cain rejects that the intelligent designer could be God because such a god would be a dictator, not the winsome God of his process theology.

All of this leads me to question the validity of process theology. Cain argues (p. 147) that an omnipotent

God cannot also be the empathetic God as portrayed in the Bible: “God wants/intends certain things but God does not guarantee—cannot guarantee—that those things will come to be.” But empathy does not mean impotence. Christ willingly subjected himself to death; this does not mean that he was not in control. Moreover, if the God of process theology is merely persuasive and not directive, how is God so without being superfluous? If God is truly benevolent, wouldn’t that benevolence be undermined by his ineffectiveness in carrying out his will?

Although the scientific arguments are clearly presented, the book is not without factual errors. In his chapter on intelligent design, Geenen argues against Behe’s irreducible complexity theory by providing evidence that the auditory ossicles and the panda’s thumb are not irreducibly complex (p. 134). But Behe never argues that they are; he limited his examples to molecular systems.

In summary, while Cain has raised some interesting arguments about the relationship between religion and science, I find them unconvincing. Science is not done in a theological vacuum and process theology’s accommodation to the materialist worldview espoused in the chapters on science is unsatisfying.

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FOR THE LOVE OF ALL CREATURES: The Story of Grace in Genesis by William Greenway. Grand Rapids, MI: Eerdmans, 2015. 178 pages. Paperback; \$18.00. ISBN: 9780802872913.

This creative study is timely in light of contemporary environmental challenges, and one of its principal findings—that God created humanity to be good stewards of the earth, “caretakers of God’s garden” (p. 84)—is most welcome owing to the general neglect of this issue in theological discourses. What William Greenway offers is a reading of Genesis that is overtly creature and creation loving in its approach (pp. xiii, 93–94, 100–105, 110, 143–44). He insists throughout that Genesis is a spiritual classic and that readers ought to approach it as such. Materialist interpretations that assume its authors attempt a primitive “scientific” account of origins are uniformly guilty of “genre confusion” (p. 8).

The problem with materialist readings, whether those of neo-atheism or biblical literalism, is the tendency to leap from science to metaphysics. Scientists who insist that evolutionary theory disproves the Bible and vindicates atheism are as guilty of this as are fundamentalists who find “proofs” for the existence of God in the same writings. Greenway’s elegantly

argued alternative insists one can accept both evolution and other scientific insights while maintaining that Genesis is true. The problem is not science but materialism (pp. 32, 107, etc.) and in response, he sets about rescuing the religious poetry and spiritual meditations that are the creation and flood narratives from misguided reading strategies. The biblical primeval history may not correspond to contemporary scientific understandings but it does present us with glimpses of a profound grace and beauty in the midst of a world suffused with injustice, cruelty, and suffering (p. 140).

Greenway contrasts Genesis 1–11 with two very different texts. The first is the ancient *Enuma Elish*, the Babylonian origin narrative that was the primary alternative to the one put forward by the authors of Genesis. The second is the comparatively modern creation narrative in Thomas Hobbes’s *Leviathan* (published 1651), which, in combination with Darwinian-style materialism, “constitutes the predominant modern Western understanding of the ultimate character of reality” (p. 17). Hobbes and twenty-first-century materialists alike view existence as “wholly physical, a blind interplay of forces” (p. 34). Whereas the *Enuma Elish* was the most important competing origin story in the ancient world, *Leviathan* outlines “the basic parameters of the modern Western Hobbesian/Darwinian creation narrative” (p. 29), and is the creation narrative of materialism (p. 30). What Hobbes seeks is a rationale for commonwealths consistent with modernity’s discovery of the materialist character of reality, a worldview that insists that human self-interest rules out the existence of true altruism. There is no god, no love, no good and evil. It is a vision of reality Greenway finds “dark and depressing” (p. 45; cf. p. 41) but one that dominates Western thought in its updated neo-Darwinian form.

The alternative is the message of grace found in the Genesis creation and flood myths. Here Greenway finds a basis to question and dismantle the deeply rooted anthropocentrism of the Western world that “has plagued readings of these texts for two millennia” (p. 16; see, too, pp. 101–103), and resources for a spiritual orientation that affirms the goodness of all life. In the process, he confronts ethical questions rarely asked in theological circles. To give but one example, his provocative discussion of animal sacrifice confronts the tendency to devalue nonhuman life so typical in the anthropocentric West. Greenway recognizes competing attitudes toward blood sacrifice in ancient Israelite society (pp. 59–63, 78, etc.) but adds that despite rival views on the matter, biblical authors uniformly present a high regard for all living things. The modern Western option that assumes an

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“ontological divide” and “absolute moral distinction between humans and other animals” is untenable in light of Genesis, Isaiah, Micah, and others. Such thinking results in horrific behaviors as humans treat animals as mere machines existing solely for human convenience. The specific examples he cites are trophy hunting and factory farming which, he argues, “would have mortified all of the ancient Israelites, excepting those awful persons who ‘break a dog’s neck’” (p. 64; citing Isa. 66:3). There is urgent need of reorientation that involves not only an affirmation of the goodness of all creation but also recognition of moral obligations to contribute to its wellbeing.

This is a wonderful contribution to theological and biblically grounded discourses about the environment and animals. Though he does not interact with Norman Habel, in some respects *For the Love of All Creatures* reminds me of the writings of Habel, not least *The Birth, the Curse and the Greening of Earth: An Ecological Reading of Genesis 1–11* (2011) and other volumes in the Earth Bible Commentary series that he edits. There are many differences in approach, but both projects share a concern to reread biblical texts in light of the unprecedented environmental challenges facing our world.

Reviewed by Michael Gilmour, Providence University College, Otterburne, MB R0A 1G0.

SCIENCE AND RELIGION: Beyond Warfare and Toward Understanding by Joshua Moritz. Winona, MN: Anselm Academic, 2016. 318 pages, includes index and glossary of terms. Paperback; \$30.95. ISBN: 9781599827155.

This book is an authoritative, judicious, and considerate review of why there is no real war between scientific pursuit and Christian faith. It successfully fills a large void in the literature of science/faith relationships by supplying an analysis and irenic disassembly of the conflict metaphor, as played out through several scientific disciplines.

Joshua Moritz has for many years been associated with the Center for Theology and the Natural Sciences (CTNS) at the Graduate Theological Union in Berkeley. He combines appointments at the CTNS and the philosophy department at the University of San Francisco. He brings to his writing an extensive background in the natural sciences, biblical languages, theology, and philosophy. He also brings a background informed by lots of discussion with students and others who have been indoctrinated with the conflict thesis.

The introductory chapter begins with a short review of the history of the modern “warfare metaphor” and

its rhetoric, with reference to such figures as Andrew Dickson White and John W. Draper. He then briefly deflates three exemplary myths from the warfare corpus: Columbus did not prove (or need to prove) that the world was round; Galileo did not go to jail; and the John Scopes “Monkey Trial” was not really about the relationship between biological evolution and faith. At this point, many readers should realize that they have uncritically absorbed a set of common cultural myths about Christian repression of science.

Chapters two to four build a more nuanced and realistic model for the historical and theoretical relationships of faith and science. Chapter two demonstrates the positive role that theistic conceptions of nature played in the historical development of the natural sciences. Once again, prominent case histories are deployed from the history of geology, evolutionary biology, and cosmology. For example, the role of Christians like Nicolas Steno and William Buckland in the development of a concept of Earth’s antiquity are emphasized. Chapter three provides an introduction to the philosophy of science, with attention to the role of faith in the life of the scientist. Moritz lays out a case that beliefs central to scientific investigation, such as a belief that the world is orderly and rational, or that it is good and worthy of investigation, are properly faith statements that are actually supported by theism. He also provides strong support for the complementary thesis that religious faith needs science. Chapter four discusses where real points of conflict lie and diagnoses the problem as one of imperialism by either scientists or Christians.

Chapters five through nine take up classic subject areas that are often portrayed as theaters of conflict. To list, in order: creation and cosmology; evolutionary biology; human nature, uniqueness, and the *imago Dei*; miracles and the laws of nature; and the problem of suffering. Each of these chapters runs about 25 to 35 pages and each competently summarizes a large body of technical literature. Any of these could be used in a classroom setting, for example, as a nice overview of the interactions of science and faith in a positive light.

The final chapter examines the scientific evidence for the nature of the end of the universe and provides a Christian hope in the world to come.

Each chapter concludes with a small set of discussion questions. These are typically followed by a section, “beyond the classroom,” which suggests a group activity for further investigation. Then a set of relevant references for further study, including internet-based references, is supplied. These sections

make the book especially applicable for classroom use. I intend to use it in classroom teaching at my institution.

As the topics above indicate, the book is wide ranging in its scope, and well organized, with a definitive trajectory. It takes the warfare metaphor to pieces and offers a more wholesome perspective in its place, one in which faith and science interact, not just to support one another, but to broaden each other's vision. This book presents a win-win option for science-faith interactions. It is a win for the reader, too.

Reviewed by Ralph Stearley, Professor of Geology, Calvin College, Grand Rapids, MI 49546.



TECHNOLOGY

HOW TO FLY A HORSE: The Secret History of Creation, Invention, and Discovery by Kevin Ashton. New York: Doubleday, 2015. 336 pages. Hardcover; \$27.95. ISBN: 9780385538596.

During the process of developing the "Internet of Things," Kevin Ashton discovered that much of what he had been led to believe about the creative process was wrong. In *How to Fly a Horse*, Ashton uses several detailed stories from history to help remove the mystery surrounding creativity and to inspire the reader to follow their own passion to make things better by making something new.

In the first few chapters, Ashton challenges commonly held myths surrounding creativity and invention. He makes the case that the ability to create is not a special characteristic possessed by a few, but is rather the essence of what makes each of us human. Inventing is not about having a stroke of genius, but requires hard work driven by a desire to make things better. Ashton asserts, "work is the soul of creation" (p. 24). Using the story of the Wright brothers along with others, he undermines the myth that creating rests on leaps of innovation. According to Ashton, invention is not characterized by leaps, but by methodical stepping, with failure greeting many of those strides. Discovery, we learn, also requires persistence.

Later in the book the author turns his attention to inspiring and instructing the reader in the pursuit of an actively creative lifestyle. Ashton explains that each of us by virtue of our unique heritage of genetics and past experience is positioned to make our own special contribution to the world. While acknowledging the importance of the past, he cautions us to guard against allowing our preconceived notions of the world or the cultural assumptions of

those around us to impede our search for the new. He describes fascinating research into the brain's filtering ability, which often allows us to see only what we are expecting to see. Ashton is suspicious of analysis and planning, preferring trial-and-error methods. He tells us that creating is fundamentally about doing. He writes, "There is no creating in meetings. Creation is action, not conversation" (p. 225). Citing research that children are often more openly creative than adults, he maintains that "adults think before acting; children think by acting" (p. 221). As a professor of engineering, I acknowledge that analysis and planning are, at times, used to delay doing and that they can also stifle creativity. However, I believe Ashton is overlooking the fact that while naïve creativity is unencumbered by the past, it is not informed by it either. To abandon analysis and planning is to ignore, to a large degree, communal wisdom, both now and down through the ages.

With urgency in his voice, Ashton reveals his motive for writing the book in the concluding chapter. Looking up from his work, he sees problems looming on the horizon that may eventually threaten modern civilization. He understands that a growing population with an ever-increasing consumptive appetite is not sustainable on a finite planet, and this is leading to a number of significant, multifaceted environmental problems. While I believe Ashton correctly assesses the seriousness of our situation, his solution is troubling. He sees our creative spark as a product of evolution: the only thing that separates us from other species. As a result, he believes that our only hope for a future is found in ourselves: in our ability to create. He hints at this hope earlier in the book when describing the process of invention:

Creation demands belief beyond reason. Our foothold is faith—in ourselves, in our dream, in our odds of success, and in the cumulative, compound, creative power of work. (p. 66)

Ashton believes that the only way out of our dilemma is that we all should sacrifice ourselves to the all-consuming hard work of creating. "And this is why we need new: Consumption is a crisis because of math; it is not yet a catastrophe because of creation. We beat change with change" (p. 240). By reducing our humanity to our creativity, Ashton is left clinging awkwardly to a blind faith in human ingenuity, free from restraint, which is precisely what has caused our problems in the first place. Ashton attempts to resolve this absurdity by suggesting that we must not be creating enough, fast enough.

The suggestion that we can do it ourselves is familiar snake oil. It is of the same vintage that Adam and Eve tasted in the garden. However, when we put

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our trust in ourselves we are left with nothing but a hand-wringing hope: a restless wishing. Thankfully, our salvation and the fate of humanity does not rest on us and our abilities, but rather, in the sovereign God of the universe and in the redemptive work of Christ, his Son. Humanity's creativity is certainly unique, but ultimately it is God's relationship with us that makes us special. Our human capacities, including our creativity, are gifts from God to be used in response to his call to lovingly serve others and the rest of his creation. Humankind and the selfishness of our sinful hearts have given rise to our problems. It is only by God's grace, through the work of the Holy Spirit, that we can bring healing to this world by redirecting our creative efforts toward the Kingdom of God.

Ashton asks us to rest on our wits, but what we find there is not rest at all, but rather a frantic scramble to save ourselves. Creativity is a gift from God that only brings blessing when used in accordance with His will.

You should read *How to Fly a Horse* for its many insights and interesting stories but do not look to it for ultimate meaning. That meaning can come only from acknowledging that true hope is not found in ourselves but in the God who saves us. As a final note, Andy Crouch's *Culture Making: Recovering Our Creative Calling* (InterVarsity Press, 2013) flows from a biblical worldview and makes a wonderful companion read to Ashton.

Reviewed by Kevin Timmer, Professor of Engineering, Dordt College, Sioux Center, IA 51250.

HOW WE GOT TO NOW: Six Innovations That Made the Modern World by Steven Johnson. New York: River Head Books, 2014. 293 pages, index. Hardcover; \$30.00. ISBN: 9781594632969.

This best-selling book was created simultaneously with a PBS/BBC television series that had the same name. Steven Johnson is a prominent writer who has written extensively on the intersection of culture, science, and technology. Among his other books are *The Ghost Map*, *The Invention of Air*, *Where Good Ideas Come From*, and *Everything Bad Is Good for You*.

He looks at technology's effect on modern society through six broad categories: glass, cold, sound, clean, time, and light. For reasons unknown to me, these categories are in a different order in the television series. This does not really matter as the six main chapters can be read in any order.

This is neither a Christian book nor an anti-Christian book. Johnson does not look at worldview as one

of his main topics. He delights in showing how the development of technology has had unusual sources and unanticipated consequences. He writes,

Innovations usually begin life with an attempt to solve a particular problem, but once they get into circulation, they end up triggering other changes that would have been extremely difficult to predict. (p. 3)

This has implications for Christians in engineering and science research. Frequently we may get bogged down in the details of our research and do not think through the implications and potential applications of it. As Johnson points out many times, technological developments often have a life of their own and lead to results that their creators may never have imagined.

One of the few times he gets into worldview related issues is when he discusses sound. He discusses the problem of sex selection abortions that have been indirectly promoted by technological development.

This may be one of the most astonishing, and tragic effects in all of twentieth century technology: someone builds a machine to listen to sound waves bouncing off icebergs, and a few generations later, millions of female fetuses are aborted thanks to that very same technology. (p. 123)

He does show a misunderstanding of Christian faith when he writes about radiometric dating of the earth. He writes that this technology is "establishing the most convincing evidence that the biblical story of the earth being six thousand years old is just that: a story, not a fact" (p. 191). He appears to assume that all Christians believe in a young earth. I do not think that many people reading this review will see radiometric dating as contradicting the Bible.

One example of his approach is to show how the sacking of Constantinople in 1204 and development of the movable type printing press in the 1440s ultimately led to the development of the telescope. The fall of Constantinople led to many of its glass makers fleeing to the small Venetian island of Murano. Their work led to Murano becoming what we would today call an innovation hub for glassmakers. The eyeglasses they developed were expensive, but since few people could read there was little demand for them. With Gutenberg's printing press, many things could now be reproduced. This led to a greater interest in reading by the public. Many people then discovered for the first time that they had bad eyesight. This created a surge in demand for spectacles. Johnson writes,

Thanks to the printing press, the Continent was suddenly populated by people who were experts at manipulating light through slightly convex pieces

of glass. These were the hackers of the first optical revolution. (p. 22)

As more and more people tinkered with curved pieces of glass, this eventually led to the development of the microscope and telescope.

Johnson refers to many of the developers of technology as time travelers, for they could see beyond the present day of their era. Sometimes they also had to be stubborn to keep working on something when no one else saw a purpose in it. An example of this is the story of Frederic Tudor. In the early 1800s, he saw many cargo ships coming into Boston harbor filled with goods from the West Indies. However, they were going back there empty. He had the idea to take ice from New England and ship it to the West Indies in what would have been the empty ships. He eventually became a very wealthy man from this business. However, it had a difficult start as most people in the West Indies had never experienced anything cold and saw no use for this strange material called ice. He had to work hard to create a demand for his product. Many people develop technologies that are eventually popular, but which people initially have no desire to purchase. The creators of the technology may have to work to help create a demand for its use.

This is an excellent book written for an intelligent lay audience. Since many of us in ASA are really lay people when it comes to anything outside our individual areas of expertise, I think most members would enjoy the book. In addition to having creative content, Steven Johnson is an excellent writer. Reading this book has motivated me to obtain and read some of his other books dealing with technology and culture.

Reviewed by William Jordan, Professor and Department Chair, Mechanical Engineering, Baylor University, Waco, TX 76798.

AND WEST IS WEST by Ron Childress. Chapel Hill, NC: Algonquin Books, 2015. 320 pages. Hardcover; \$26.95. ISBN: 9781616205232.

For some time, I held a popular view that tools and technologies are neutral: they have no moral value in and of themselves, apart from how we use them. This was an empowering way for me to think about my own use of computing technologies, and perhaps helpful to the extent that it caused me to evaluate the directions of my research.

One of my close friends, however, holds a degree in philosophy and has the troubling habit of asking challenging questions and inviting me to think carefully about my assumptions and their implications.

He likes to point out that tools and technology actually change a person. Yes, a hammer can be used for good purposes, or for bad ones, and it is up to the person holding that hammer to determine what use she will put it to. In that sense, we may call it neutral. But a person who picks up a hammer becomes a different person.

Or, to use a more poignant example, a person becomes a different person by picking up a gun. Not only in many circumstances might I act very differently with the gun in my hand, but equally importantly I would think of myself differently. The tools and technologies we use change us.

Childress's new novel *And West Is West* provides a fascinating exploration of how the technologies we use change us. The tale follows two protagonists on opposite sides of the country: Jessica, a drone pilot who carries out missile strikes on suspected terrorists, and Ethan, a quant or programmer who designs algorithms that enable his bank to profit off high-speed currency exchanges based on the market fluctuations caused by terrorist activities. Both protagonists wrestle with moral qualms about their work and the suffering it causes or exploits.

I had some doubts when I picked up the book and saw it had won a prize for "socially engaged fiction." Socially engaged is good. But I feared the writing would be didactic: a sermon thinly veiled as a story. While the author does not leave the reader with many doubts about his view of drone strikes, or of algorithmic trading that profits off human suffering, the much more interesting and subtle exploration describing the seemingly "neutral" technologies the protagonists make use of, and the isolating impact and depersonalizing nature of those technologies. It is not only what the technologies are used for that change the user, but also the nature of the technologies themselves.

Jessica sits thousands of miles away from her targets, flying her drone from a military base in the Nevada desert. She launches missiles (euphemistically called "angels") at blurry images on a computer screen. Sometimes the missiles take innocent lives. She and her colleagues escape the monotony, and perhaps also the feelings of guilt, through overeating, gambling machines, and nicotine. "On the base they call it Operation Expanding Waistline, partly because covert snacking is the main pastime during shifts at a drone monitor."

Ethan is a quant; he works seven-day weeks in the Wall Street trading world, sitting alone behind a computer monitor writing code, keeping himself going

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with drugs and energy drinks. “Basically he works all the time.” When not at the office he is still at the call of the bank, constantly chained to mobile computing technologies. He seems unable to maintain healthy human relationships. There is no mention of his family until the end of the book. He loses two girlfriends. He has only one friend.

Not far into the novel both Jessica and Ethan lose their jobs. Jessica makes the mistake of confessing feelings of guilt to her biological father, who happens to be in prison. That she had to confess via letter to a biological father she does not even know is symptomatic of her isolation. Since her guilt involves a drone strike with civilian casualties, the confession is a security breach resulting in her discharge. Ethan, in a moment of physical and emotional fatigue also brought about from guilt and failed relationships, makes a decimal point error that causes his bank to lose a few hundred thousand dollars. This is presumably a fraction of the money his algorithms have actually earned the bank, but since Ethan also made the mistake of being unshackled from his technologies for twenty-four hours, it provides an excuse for his boss to fire him.

Then the real drama begins. Having been conditioned to isolation, both struggle to adjust to life away from that work, and in particular to build real human relationships not mediated, restricted, or distracted by technology. The struggles are not easy, and are compounded by the secretive—and immoral—nature of their former jobs. Jessica, with her knowledge of sensitive military secrets, becomes a wanted fugitive. Ethan winds up in a legal battle with his former employer.

Interestingly, the paths of the two protagonists never cross. The only connection is the fact that Ethan’s algorithms enabled his bank to profit off the drone strikes carried out by Jessica. Not until the very end of the novel does Childress reveal the thin thread that unites their personal lives, and leaves the reader with the possibility that they might meet in person. But Childress provides a fascinating cast of other characters ranging from an FBI agent who once interrogated (or tortured) Al Qaeda suspects in Afghanistan (thus weaving in another aspect of social concern), to a weed-smoking tattoo artist, to a bisexual painter who goes from a struggling to a wildly successful artist, to a Russian billionaire, to a suicidal father of an ex-girlfriend.

The book raised a number of interesting questions about my own views of technologies and how I use them, and I found myself pondering some of these after closing the pages. The pacing of the novel is

excellent, switching back and forth between numerous scenes in the two separate storylines, and now and then jumping to the point of view of one of the minor characters. My primary critique is that many of the characters are one dimensional: caricatures or types rather than fleshed-out persons. Even the protagonists do not really grow or change until the very end, and the change is seen then in only one short scene. Nonetheless, Childress succeeded at the most important level in that I found myself caring what happened to both Ethan and Jessica, even if at points I did not like the former very much. That, and the well-crafted suspense, kept me reading and made it a book I would recommend.

Reviewed by Matthew Dickerson, Professor of Computer Science, Middlebury College, Middlebury, VT 05753.

THE MASTER ALGORITHM: How the Quest for the Ultimate Learning Machine Will Remake Our World by Pedro Domingos. New York: Basic Books, 2015. 311 pages, index. Hardcover; \$29.99. ISBN: 9780465065707.

Pedro Domingos is a professor of computer science at the University of Washington and a leading researcher in the area of machine learning. The central thesis of this book is, as he states it, that “all knowledge—past, present, and future—can be derived from data by a single, universal learning algorithm” (p. 26). He calls that algorithm, yet to be discovered, the “Master Algorithm”—hence the title of the book.

The book begins by discussing the ubiquity of machine learning in the present day. Email spam filters, recommendation systems used by companies such as Amazon and Netflix, selection of stocks by mutual funds, the layout of goods in a supermarket, credit card fraud detection, and loan application approval—among many others—make heavy use of machine learning. According to Domingos, even the result of the 2012 presidential election was heavily influenced by machine learning: “the candidate with the best voter model wins, like Obama versus Romney” (p. xiv).

The author classifies workers in the field into five rival schools, which he often refers to as tribes. The Master Algorithm would unify these five approaches into a single algorithm that draws on the strengths of all five. Domingos claims that

if such an algorithm is possible, inventing it would be one of the greatest scientific achievements of all time. In fact, the Master Algorithm is the last thing we’ll ever have to invent because, once we let it loose, it will go on to invent everything else that can be invented. (p. 25)

Domingos devotes one chapter to each of the five tribes of machine-learning workers. The Symbolist approach (chap. 3) uses induction to derive symbolic rules such as decision trees. Connectionist models (chap. 4) emulate the learning that takes place in the human brain through neural networks. The Evolutionist approach (chap. 5) uses learning strategies modeled after the way species have learned (i.e., become more fit for their environment) through the evolutionary process; hence the names “genetic algorithms” and “genetic programming” for variants of this approach. The Bayesian approach (chap. 6) involves algorithms that learn to assess the probability of statements of the form effect → cause by learning the probability of statements of the form cause → effect by means of data mining, followed by an application of Bayes’s theorem and/or developing a Markov chain. The Analogizer approach (chap. 7) learns from a study of cases that are analogous to the question under consideration.

In the next two chapters, the author explores what the Master Algorithm, an algorithm that draws on all five approaches, might look like. He describes a system known as Alchemy that he has been working on since 2003, which he regards as a step along the road toward the Master Algorithm and which is available for download. Domingos points out that Alchemy still has significant shortcomings, for instance, “it does not yet scale to truly big data” and “someone without a PhD in machine learning will find it hard to use” (p. 255). He notes that Alchemy has been successfully applied to many applications, and describes one example in detail:

One of Alchemy’s largest applications to date was to learn a semantic network ... from the web. A semantic network is a set of concepts (like planets and stars) and relationships among these concepts (planets orbit stars). Alchemy learned over a million such patterns from facts extracted from the web (e.g., Earth orbits the sun). It discovered concepts like planet all by itself. (p. 255)

In the final chapter, the author moves into a broader view of the future of artificial intelligence (AI), with the Master Algorithm playing a key role. He envisions the day when a digital model of each person, based on the totality of their data and under the individual person’s control, might facilitate more-accurate matching in everything from advertising, to personalized medicine, to finding a job, to computer dating. From there he moves on to speculate about the further impact of such technological growth on society. One thing this reviewer found fascinating was his discussion of the singularity theory espoused by Ray Kurzweil and others. While agreeing with Kurzweil that the point at which machine

intelligence surpasses human intelligence is coming, he argues that it will come about as a result of invention of the Master Algorithm, rather than as a result of reverse-engineering the brain as Kurzweil postulates. He criticizes (rightly in this reviewer’s opinion) Kurzweil’s tendency to see various phenomena as exhibiting exponential growth into the distant future rather than as S-curves trending toward an asymptote.

It is at this point, in this reviewer’s opinion, that the author falls into the same trap that seems to especially bedevil people working in AI: claiming that future developments in AI will lead humanity to utopia, and even ascribing God-like powers to it. As he puts it, “any sufficiently advanced AI is indistinguishable from God” (p. 285). If the basic problem of humanity is lack of knowledge, then arguably AI may be the solution; but if it is estrangement from our Creator as a result of sin, then it is not the tree of knowledge that humanity needs, but rather the tree of the Cross.

That having been said, the book is still a fascinating glimpse into the increasingly important field of machine learning, written by an expert in the field who is also a good communicator.

Reviewed by Russell C. Bjork, Professor of Computer Science, Gordon College, Wenham, MA 01984.



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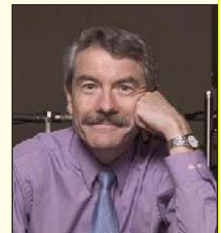
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