

50th Anniversary Meeting of the ASA  
 July 25-29, 1991  
 Wheaton College  
 Wheaton, Illinois

**The ASA at 50: Celebrating the Past and Looking to the Future**

**Thursday, July 25**

8:45-5:00 PM Affiliation of Christian Biologists Meetings & Workshops  
 2-5:00 PM Registration (Fischer Hall Lobby)  
 5:15-6:00 PM ✦ Dinner (Anderson Commons)  
 7-8:30 PM **OPENING SESSION** (Wheaton Christian Reformed Church)  
 Chair: **Gerald Hess**, Messiah College, President, ASA.  
**Welcome: Patricia Ward**, Dean of Arts & Sciences, Wheaton College.  
**Announcements: Al Smith**  
**Lecture: "Early Encounters Between Christianity and Science: The Case of the Middle Ages"—David C. Lindberg**, Director, Inst. for Research in the Humanities, University of Wisconsin, Madison.  
 8:45 PM **Mixer**

**Friday, July 26**

7:15-8:00 AM ✦ Breakfast (Anderson Commons)  
 8:15-8:45 AM **Devotions** (Wheaton Christian Reformed Church)  
 9:00 AM **PLENARY SESSION: (All Plenary Sessions to be held at Wheaton Christian Reformed Church)**  
 Chair: **Jack Haas**  
 "Between Genesis and Geology: Evangelical Science in the 1930's," **Darryl Hart**, Director, Inst. for the Study of American Evangelicals, Wheaton College  
 10:00 AM ✦ Coffee Break  
 10:30 AM **PLENARY SESSION: "Christian, Teacher, Scientist, Mentor: Dr. Russell L. Mixer—Visionary for the Role of Science in Christian Higher Education," Dorothy Chappell**, Wheaton College.

11:30 AM **PLENARY SESSION: Contributions of Wheaton College Women to the Early ASA,** **Dorothy Chappell & Joseph Spradley**, Wheaton College.  
 12:00-1:00 PM ✦ Lunch (Anderson Commons)  
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**Davis A. Young**, Calvin College: "The Use of Extra-Biblical Data in Interpreting the Deluge Account."  
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 8:30 PM Editorial Board Meeting (Armerding 129)

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- 7:15-8:00 AM **✦ Breakfast** (Anderson Commons)
- 8:15-8:45 AM Devotions (Armerding Lecture Hall)
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**IIA—EDUCATION** (Reformed Church) AM Chair: **Elizabeth Zipf**
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- 3:30-5:00 PM **Business Meeting** (Armerding Lecture Hall) Chair: **Gerald Hess** President, ASA
- 7:00-7:30 PM Pre-Banquet Reception (South Party Room)
- 7:30-9:30 PM **Banquet** (Anderson Commons)  
 Chair: **Walter R. Hearn**, New College, Berkeley, CA.  
 Speaker: **Richard H. Bube**, Stanford University: "The Future of the ASA: Challenges and Pitfalls."  
 Music: **William Barton Hurlbut**

**Sunday, July 28**

- 7:15-8:00 AM **✦ Breakfast** (Anderson Commons)  
 (A list of local churches will be available at registration.)
- 12:00-1:00 PM **✦ Lunch** (Anderson Commons)

1:30-2:40	PM	<b>PARALLEL SESSIONS III</b> <b>IIIA—GENERAL</b> (Crusader Room, Fischer Hall) Chair: <b>Donald Munro</b>
1:30-2:05	PM	<b>H. Harold Hartzler</b> , Goshen, IN: "A Personal View of the ASA."
2:05-2:40	PM	<b>Stephen Hurlbut</b> , Wheaton College: "Conforming Theology to Modern Science: Langdon Gilkey as Instructive Example." <b>IIIB—GENERAL</b> (Armerding Lecture Hall) Chair: <b>Howard Claassen</b>
1:30-2:05	PM	<b>Thomas J. Burke, Jr.</b> , Hillsdale College: "The Nature of God and Divine Causality."
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3:00-5:00	PM	<b>DISCUSSION GROUPS:</b> (Locations in Armerding Hall—TBA)
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		2. <b>J. Richard Arndt</b> , California State Univ., Fresno: "How to Organize a Faculty-Staff Christian Fellowship on Your Campus."
		3. <b>Paul Arveson</b> , Silver Spring, MD: "ASA's Role in Public Education."
		4. <b>Jerry Bergman</b> , Northwest Tech College, Archbold, OH: "The Mims Case and <i>Scientific American</i> ."
		5. <b>Richard H. Bube</b> , Stanford Univ.: "Perspectives on the Integration of Science and Christian Theology in the Future."
		6. <b>James O. Buswell</b> , Wm. Carey Int'l Univ.: "Christian Anthropology."
		7. <b>Harry Cook</b> , Edmonton, Alberta: "History of Biology."
		8. <b>Robert F. DeHaan</b> , Philadelphia, PA: "Toward a Theory of Phyletic Development with Implications For the General Theory of Evolution."
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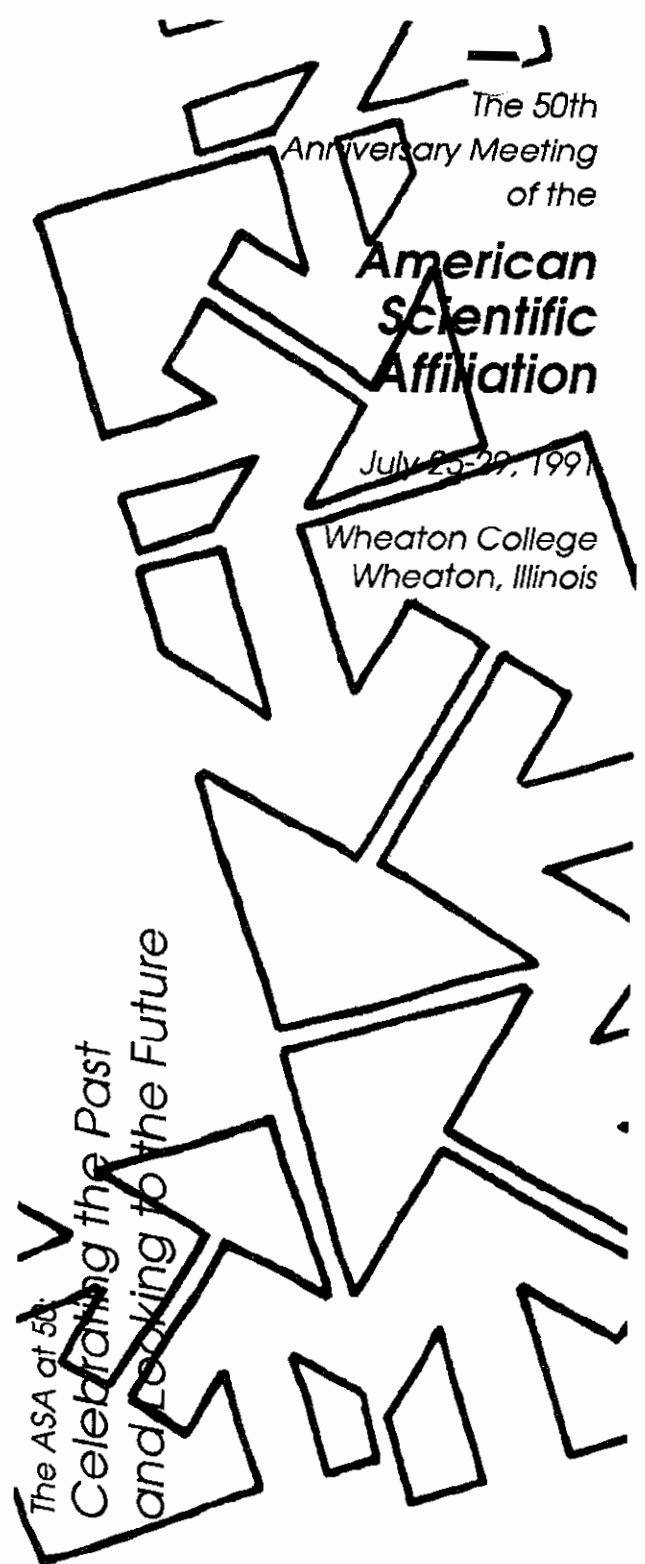
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9:00-12:10	AM	<b>PARALLEL SESSIONS IV</b> <b>IV A—GENERAL</b> (Edman, East Wing) Chair: <b>Russell Maatman</b>
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ASA extends thanks to Program Chair, Jack Haas, and Local Arrangements Chair, Al Smith, and to all those who have lent their support to this year's Annual Meeting.

American Scientific Affiliation  
 Box 668  
 Ipswich, MA 01938  
 508-356-5656



ABSTRACTS FROM THE 1991 ANNUAL MEETING OF THE

AMERICAN SCIENTIFIC AFFILIATION

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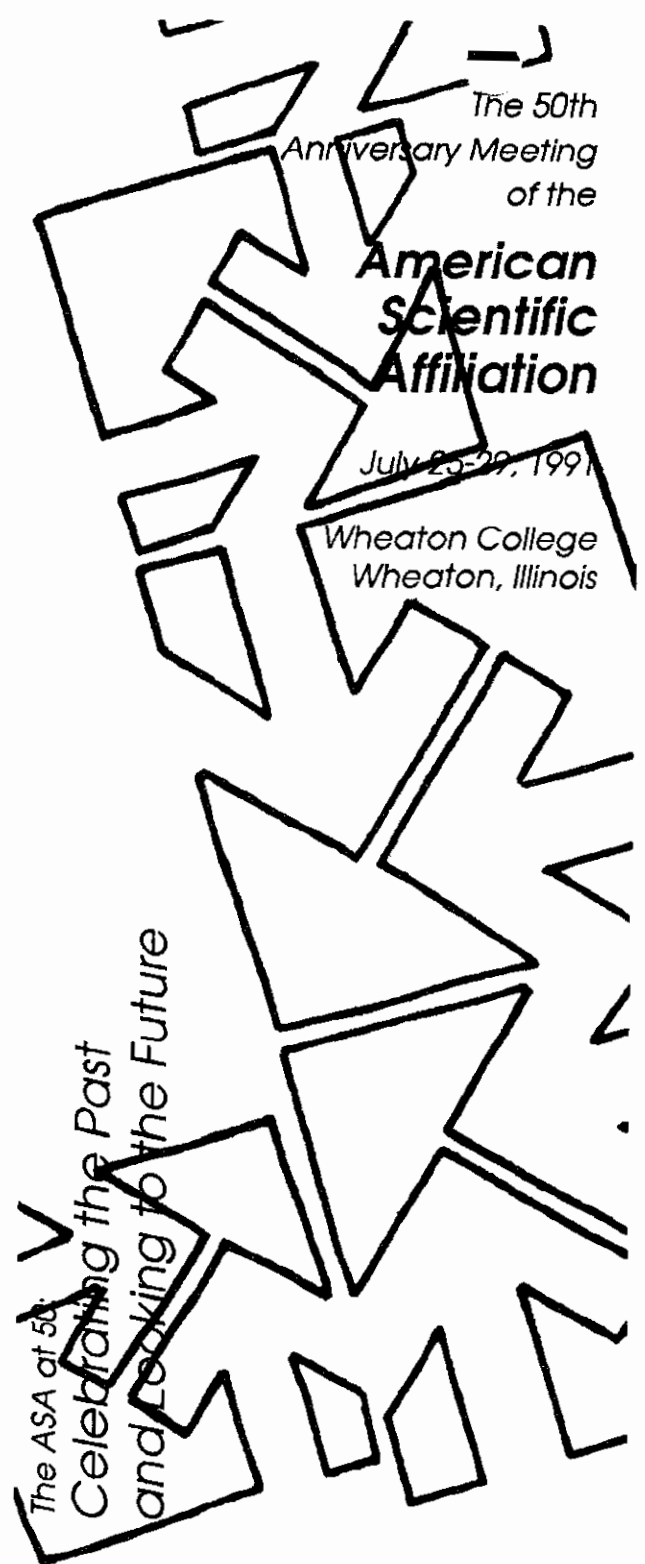
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American Scientific Affiliation  
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## SEQUENCING THE HUMAN GENOME -

WHAT WILL WE FIND AND HOW WILL WE USE IT ?

H. James Armbrrecht, Ph.D.  
Associate Professor of Medicine and Biochemistry  
St. Louis University School of Medicine  
St. Louis, MO 63104

The goal of the Human Genome Project is to determine the linear sequence of the billions of nucleotides which make up the DNA in our chromosomes. This linear sequence contains the information for the birth, growth, maturation, and death of our physical body. From previous studies, it is safe to predict that most of the human genome will be found to contain apparently random or repeating sequences of unknown function. Within the random sequences are buried very precise nucleotide sequences, or genes, which code for proteins. Along with the functional genes, there are "pseudogenes" which are not expressed and which may be byproducts of cellular function and change. Sequencing the human genome should greatly increase our knowledge of the genetic basis of human disease. This knowledge, coupled with recent advances molecular biology, holds the promise of modifying the human genome and its products so as to alleviate human suffering. On the other hand, this knowledge could also be used to screen for "undesireable" characteristics. If, as a result of the Human Genome Project, it someday becomes possible to analyze a person's genetic makeup as easily as it is now to do a blood test, the legal and ethical consequences will be enormous. Like all new knowledge, the information generated by the Human Genome Project can increase our awe and reverance for the Creator of the Universe. However, it may also sorely tax our ability as sinful men to use this information in an ethical manner.

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"The Reaction to Aristotle in Eleventh-Century Baghdad:  
An Unintended Overture to Science"

The Arabic translations of Greek science, during the ninth century Golden Age of Islam, led to a flowering of Islamic theology. In this, Aristotle was a particular challenge to Muslims--not unlike the effect of Darwin a thousand years later. The learned, having embraced Greek thought, quickly understood that Aristotelianism meant problems for Islam.

Muslim theologians proclaimed divine creation, but they knew that Aristotle had declared the world to be eternal. Now, if the world were really eternal, how could Allah be its creator? Contending theologians sought answers to reconcile Islamic theology with Aristotelian science.

Likewise seeking an accommodation was al-Ghazzali, said to be the greatest theologian of Islam. Persian-born and Arabic speaking, he came to Baghdad in A.D. 1091, at age 33, to teach theology. Although al-Ghazzali subordinated Aristotle to Muhammad, he openly admired the Generation of Animals, Heavens, History of Animals, and the Physics; he also mastered Ptolemaic and Arab astronomy, and likely the works of Plotinus and Philoponus.

In his Incoherence of the Philosophers (1954, 1978; Tahafut al-Falasifa), on which this paper is based, al-Ghazzali rejected eternality and criticized ibn Sina's Aristotelianism--while remaining an obvious Aristotelian himself. In his robust theism, he affirmed the creation of time and the world; actually deployed Aristotle's own notions of mathematical infinity to argue that planets revolved, not eternally, but in finite time; and mounted a vigorous critique of Aristotelian causality.

His Islamic commentary on Aristotle preceded many Christian analyses, and warrants notice in probing the rise of western science.

(Abstract, RPA, 3-13-1991)

## Abstract

### William Paley and the Argument from Perfection Tradition

by

John T. Baldwin

4-14-91

Paley is usually remembered for his formulation of the watch analogy in his classic Natural Theology (1802). What is little known is the fact that William Paley anticipates, in the Natural Theology, the argument from perfection in response to Erasmus Darwin. This paper traces the argument from perfection tradition from its probable inception in the Natural Theology through important moments in its subsequent history to its contemporary usage showing its continuing impact upon biological, theological and philosophical theories of origin.

First, the paper discusses the definition of the argument from perfection, noting that based upon the axiom that function presupposes complete form, Paley argues that the human being could not live with an epiglottis in a half formed state (NT, 127).

The paper then looks at the argument from perfection tradition as developed by Alfred Russel Wallace, St. George Mivart, Henri Bergson, Richard Goldschmidt, A. E. Taylor, Stephen Joy Gould, and Anthony Kenny (1987). Kenny argues that the origin of true breeding species represents not a contingent gap but a necessary gap in biological theory. His new distinction between contingent and necessary gaps is a helpful response to critics charging a "God-of-the-gaps fallacy" against the argument from perfection.

In conclusion, the paper suggests that the accumulative evidence presented by the proponents of the argument from perfection reveals a necessarily fatal biological inadequacy in any theory of origins based exclusively upon a materialistic notion of origins driven wholly by truly free, minute random mutations and absolute natural selection.

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*THE COMPULSION TO A CLOCKWORK UNIVERSE:  
A BRIEF HISTORY OF THE TIMES OF MECHANISTIC SCIENCE  
SEEN IN BIBLICAL PERSPECTIVE*

Abstract

The origin of the science of mechanics in Newtonian physics over 300 years ago was almost immediately clouded by gross violations of its proper methodology in spurious generalizations into philosophic dogma. These distortions have since then been propagated and extended for non-scientific reasons, with profound consequences for life-shaping values of Western culture. These "times" of mechanistic science are selectively instantiated in this paper, beginning with fundamental deism (not the absentee-God variety); progressing to Kant's model of a mechanistically evolving universe; probing the mechanics of quantum mechanics, and concluding with current attempts in computer science to produce human-like artificial intelligence.

The compulsion to a closed universe of mechanistic self-causation is related in biblical perspective to the grasp for autonomy initiated in Eden. The controlling power of autonomy-seeking presuppositions veiled in misleading interpretations of the meaning of science is illustrated in the "times" here reviewed. Consistent with repeated calls for careful distinction between science and philosophy in fifty years of A.S.A. history, greater emphasis needs to be placed on the roles of theology and philosophy in clarifying the presuppositions of science worthy of the kingdom of God. Thus the secular ground rules of science can be transcended in achieving science as the blessing God intended for education, thought and life of our society, free of the deceptions of a regnant scientific materialism. The paper closes with some specific suggestions for further implementing these goals so manifestly important in the life and times of the A.S.A.

## The History of the Evolution-Creation Controversy

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### Abstract

The history of the modern creation movement from the early 1900's work of George McCready Price to Byron Nelson, through the most recent resurgence of the movement by Henry Morris and John Whitcomb and their work The Genesis Flood was covered. The social factors involved were reviewed, as were some of the main controversies and schisms. The movement has been plagued by internal divisions from the beginning, some which are briefly outlined. There has also been considerable diversity in many of the basic areas, including the extent of historical evolution, the explanatory value of macro versus micro evolution, the age of the earth and related. Many of the important persons involved in the movement were long-age creationists and a large number do not fit into the stereotype of creationists as often presented in the mass media. Progressive creationism is a term which would more accurately describe the view of many of those who have dominated the movement.

THIRTY YEARS OF ENVIRONMENTAL EDUCATION AT EASTERN MENNONITE COLLEGE  
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An evolving science curriculum at a Christian college is strongly influenced by several major factors, including student/constituency needs, faculty interests, and accreditation standards and conventions. But other, more subtle but powerful forces have had their effect on the science program and academic life at Eastern Mennonite College despite a strong preference towards careers in medicine and education. These include the motifs of Christian service and missions, as well as general concern about growing world population, famine, and environmental deterioration. Secular and religious mood about these issues was reflected in several key publications and movements which have had their effect on the college curriculum. Some of these are:

Carson, *Silent Spring*, Ehrlich, *The Population Bomb*, Brown, *The Twenty-Ninth day*, Schaeffer, *Pollution and the Death of Man*, Schumacher, *Small is Beautiful*, Sider, *Rich Christians in an Age of Hunger*, Wilkinson, *Earthkeeping: Christian Stewardship of Natural Resources*, Gussow, *The Feeding Web: Issues in Nutritional Ecology*, Longacre, *Living More With Less*, Simon, *Bread for the World*, White, "The Historical Roots of our Ecological Crisis", Miller, *Living in the Environment*, Club of Rome, Earth Day, and World Food Day.

Growing out of interests and influences such as these, Eastern Mennonite College has developed such courses as Environmental Science, Food and Population, and Agroecology, a major in International Agriculture, a student-run recycling program called "Earthkeepers", several all-school seminars including "Christianity and the Future", a transcultural requirement for all students, and participation in an annual two-week conference on international development for over twenty years.

Abstract of  
"The Nature of God and Divine Causality"

by

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This paper argues that the biblically rooted Judaeo-Christian understanding of God as Creator of the world ex nihilo entails a unique view of God's relation to the world, one with important epistemological implications. The first section analyzes the notion of God as Creator (as opposed to that of God as Artificer) and attempts to show that it necessitates conceiving of God's causal action as that of "First Cause" rather than as one cause among others. Such a view of God's causality, it is further argued, is also necessary to sustain the traditional attributes of God which distinguish Theism from other theistic positions such as Paganism, Deism, and Process Theology. The second section argues that such a conception of God's causality allows for a complementary view of the world which sees it as a complete causal nexus. It is then argued that the consequent conception of the relation between God and the world makes a naturalistic approach to science possible without excluding a traditional view of divine providence. Theism, in other words, is not only consistent with, but also supports a non-supernaturalistic approach to science at all levels, from physics and chemistry through biology and psychology. The last section argues that this view has important implications for such important topics as the evidential value of miracles and the distinction between philosophy and science.



## THE FUTURE OF THE ASA: CHALLENGES AND PITFALLS

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Today, 50 years after the founding of the ASA, what is our purpose? Whom do we serve? What are our goals for the next 50 years? Our answers to these questions must frequently be cast in a "neither/nor" framework that strives to warn us of extremes on either side, while leaving the middle ground open for creative exploration. I am grateful for this opportunity to share some of my personal convictions with you.

The central charter of the ASA should be to maintain support for authentic science and for authentic Christian theology, seeking to integrate valid insights from both without sacrifice to either. In carrying out this charter, we need to remember a few basics: (1) redemption theology, "gifts of the Spirit," are not changed by changes in our scientific knowledge and understanding; (2) we must avoid "scientific theology," which becomes pseudotheology as theology is bent to match current scientific understanding; (3) we must avoid false syntheses of science and theology such as "New Age," which effectively removes the authenticity from both science and theology.

The ASA should become neither a "scientific scholarly society" nor an evangelistic branch of the church," while in fact making contributions to both endeavors. We should strive to be involved in treating interactions between science and Christianity as Christian scholars of science. We should be neither a "scientific elite" nor a group for "Christian service only." Rather we should strive to make contributions over the whole range of activity: scholarship, interaction, reflection, apologetics, evangelism, and service, each in its proper place. We should have activities that challenge scholarly specialists, while at the same time offering new insights, support and guidelines for non-specialists, students and pastors. We should be neither a "Think Tank" nor a group devoted only to "practical applications." But we should strive to be involved both in education and in motivation.

The members of ASA are called, I believe, to serve as a bridge between the scientific community and the Christian community. Members of the ASA are among the few people who really belong to both communities and can speak with understanding and authority about the activities and perspectives of both communities. It is not that we should be involved so much in building a bridge between the communities by some kind of forced synthesis, but that we ourselves be such a bridge.

Finally we should seek a variety of ways to reach out beyond the strictly American Scientific Affiliation and establish contacts with others of like mind and purpose around the world.

## SPIRITUAL LESSONS FROM HAZARDOUS WASTE SITES

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Landfills and hazardous waste sites graphically reveal the dimensions of both collective and personal sin in our society. Landfills are often sited on the basis of political expediency or economic interests rather than on the basis of appropriate geologic or hydrologic conditions. Poor construction, unsound operating procedures, illicit dumping and lack of maintenance may adversely affect the health of those living near these sites and lead to degradation of the natural habitat. Cleanup costs for contaminated soil and groundwater far exceed the cost of preventing this pollution. Remediation involves correct application of scientific knowledge and Biblical principles to long-term solutions. Humility in interpreting geologic data is essential in dealing with complex geohydrologic systems where decisions affect local drinking water supplies. Many opportunities exist for Christians in the scientific community to work on such projects which are typically interdisciplinary. Such work provides a positive witness to the world and allows a realistic view of man's nature and the environment to be incorporated into decisions regarding waste disposal.

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Russell L. Mixter: Scientist, Teacher, Scholar -  
Visionary for Christian Higher Education

Dr. Russell L. Mixter, Professor Emeritus of Zoology, served as faculty member for 50+ years at Wheaton College (IL) and other institutions where he dedicated his career to Christian higher education. His role in coeducational Christian Liberal Arts colleges provided mentoring which combined high scholastic standards with devout Christian faith and practice. He enjoyed a career of teaching biology that was rated highly by students and peers, a professional and scholarly career that included serving as president of the American Scientific Affiliation (ASA) and editor of the Journal of the ASA, and served as editor/author of numerous papers including the monograph Creation and Evolution (1952, 1968) and the book, Evolution and Christian Thought (1959). A regular attendee of professional meetings, director of a NSF institute for elementary school teachers, attendee of National Science Foundation summer programs, and teacher of zoology at the Wheaton College Science Station, Dr. Russell L. Mixter interacted with and trained Christians studying science in the science community at large, and with Christian church and parachurch organizations where he brought credibility to the practice of science. Dr. Mixter's career is marked by his practice of integration of the Christian faith, learning, and practice, and he has taken a proactive approach in addressing contemporary issues in biology.

## Oxymorons of the Faith and of Science

by

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The term oxymoron has gained recent popularity with satirical humorists as a sophisticated put-down. Thus, to say, "'honest politician' is an oxymoron" means there can't be such a beast. However, the term by definition refers to a combination of contradictory words which may nevertheless express a truth. In the true variety, the apparent contradiction may result from alternate word meanings, or from false presuppositions imposed on us by our culture or resulting from our narrow experience. Interestingly, the two human disciplines seeking absolute truth, science and theology, contain many oxymoronic concepts.

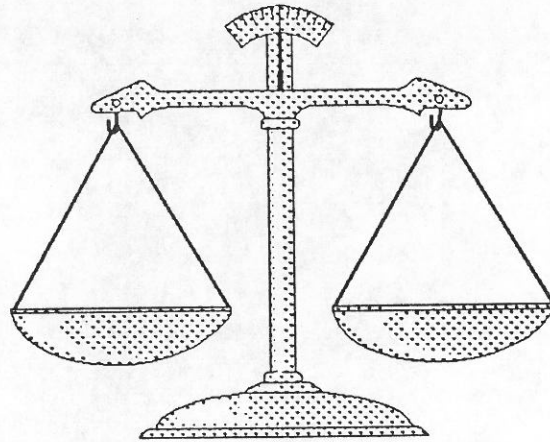
In science, the fields of quantum mechanics and relativistic physics lend themselves to such paradoxical truths because they are so beyond the realm in which everyday experience and "common sense" apply. Thus we have the "wave-like particle" whose particular manifestation depends on our observation. A more recently coined oxymoron is "deterministic chaos", a mathematical concept which is now finding application in many fields of science. If acknowledged, such expressions force us to rethink some of our most basic presuppositions.

Without surprise then, in the study of God and of the spiritual nature of man we also encounter oxymoronic expressions. Scripture reveals God's "wise foolishness", and Jesus, the "servant king" and the "God-man". Regarding man, we learn of the "enslaved free", the "exalted humble", the "last first", "empowering weakness" and "life-giving death". Biblical authors seem to go out of their way to juxtapose contradictory ideas. We must choose either to scoff or to reassess our assumptions in the light of the Kingdom of God. To mature in that Kingdom we must become more childlike, putting off the accretions of culture and common sense to pursue with fearful confidence the mysteries of God.

# SCIENCE AND RELIGION IN THE 17TH CENTURY: A CREATIVE TENSION

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Presented at the 50th annual meeting of the  
American Scientific Affiliation  
Wheaton College, 26 July 1991



**Abstract:** I will argue that the relation between science and religion in the 17th century is best described as one of creative tension, with important insights in religion coming from the new science and important elements of the new science being shaped by theological assumptions. In doing so I will review the major changes associated with the new science, and then outline a few specific ways in which the new science influenced, and was influenced by, the Christian theology of the culture in which the new science arose.

**TOWARD A THEORY OF PHYLETIC DEVELOPMENT  
WITH IMPLICATIONS FOR THE GENERAL THEORY OF EVOLUTION**

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Development is viewed, in a theory of phyletic development, as an intrinsic, hierarchically controlled process, that brings about an orderly and characteristic succession of changes in biological systems. The changes are expressed in four morphological patterns that define development in both individual organisms and phyletic lineages. They are 1) the general-to-specific or hierarchical direction of development, 2) the curvilinear shape of development, 3) allomorphy, and 4) the life span. The developmental processes that give rise to these patterns are the result primarily of genetic mechanisms, with gene products and the environment playing secondary roles.

Development is not limited to the embryonic period but occurs over the entire life span of individual organisms. Further, in the theory of phyletic development, development also takes place in genetically continuous populations and phyletic lineages over long periods of time and countless generations. Evidence is found, in part, in the parallel patterns of development that appear in phyletic lineages and individual life spans. Phyletic development is driven by the phyletic germ-line genome; individual development by the somatic genome. Processes of individual development are inherited from prior phyletic development.

The theory of phyletic development is compared to and contrasted with the general theory of evolution, with emphasis on objections raised by evolutionists to prior developmental approaches.

Developmental theory is also applied to unresolved or partially solved problems in the history of life since the Cambrian.

## DETECTING DESIGN THROUGH SMALL PROBABILITIES

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**ABSTRACT:** How small does the probability of an event have to be before we refuse to attribute that event to chance? Smallness of probability is itself not enough since events with extremely small probability occur all the time. For instance, if you were at this moment to flip a coin 1000 times, you would witness one of  $2^{1000}$  possible events, or equivalently an event with probability on the order of one in  $10^{300}$ . Whatever sequence of coin tosses you observe would be extremely unlikely; in fact, you would probably be witnessing a unique event in the history of coin tossing.

But when such events are also prespecified, it becomes difficult to attribute their occurrence to chance. Thus in the coin tossing example, if someone were to predict the sequence you were about to flip, you might wonder if your flipping were truly a matter of chance. Typically we search for a causal account of how chance was offset. For instance, with the prophet predicting your coin flips, you might wonder if he wasn't using magnets to control the trajectory of the coin.

Lacking such a causal story, however, are we still justified in asserting that an extremely improbable prespecified event was not the result of chance? This question is relevant to such diverse areas as prophecy, miracles, parapsychology, gambling, and complexity theory, with the complexity of living systems being of especial interest. The unifying principle here is design conceived as prespecification. I shall argue that design is unavoidable whenever prespecification and small probabilities collide.

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(Author: "How It All Began: Why Can't Evangelicals Agree", Christianity Today,  
August 12, 1988.)

George Frederick Wright--Evangelical and Evolutionist:  
19th Century Roots of 'Harmonious Dissonance'.

This paper takes into consideration current differences in the Evangelical community over the proper tack to take toward the scientific theory of evolution; offers a historical perspective via a portrait of George Frederick Wright -- nineteenth century Congregationalist theologian, educator and noted geologist; examines the seeds of the twentieth century dilemma as present in the thought of the 'last natural theologian'; suggests implications for current strategies aimed at teaching science in a climate of controversy.

Wright teamed up with Harvard Botanist Asa Gray to popularize Darwinian theory in the United States. He aimed to assure that "the transmutation hypothesis" gained a fair hearing in the Protestant community. As Professor of the Harmony of Science and Revelation at Oberlin College he consistently advocated a vital partnership between the work of the church and the revelations of science. Articles like "Calvinism and Darwinism" expressed an essential compatibility between Evangelical theology and Evolutionary biology.

By the early twentieth century, however, Wright declared his opposition to 'evolution', writing articles for The Fundamentals, stressing the "uncertainties of science" and "the infirmity of all inductive reasoning." He specifically offered "geological confirmation of the Flood" and generally argued that the science of geology could be used to support the Genesis account of creation as "matters of fact occurrences."

Several factors, both internal and external to Wright's Evangelicalism, led to difficulty. The alliance between the authority of 'science' and an authoritative interpretation of Scripture collapsed; the institutional and theoretical means of sustaining a position as natural theologian, or 'harmonizer' of religion and science, dissolved; the rules of the game and the definition of terms had changed, placing Wright in an outsider's position, speaking to a small audience. The stage was set for confrontation.



OPERATION HOT POTATO  
Bible/Science Attitudes  
Among Evangelical Undergraduates

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More than 500 Christian undergraduates have been surveyed over the last five years in an effort to assess their opinions on key Bible-science issues. This effort has become a necessary prelude to teaching introductory geology amidst a sea of diverse church and school backgrounds. Pervasive concerns over origins, evolution, Earth's age, etc., call for open but sensitive treatment.

The survey begins with data on hometown, church affiliation, interests, major, science background and class (freshman to senior). Then follow five questions: 1) Earth is billions of years old (T/F). 2) Earth was created in six 24-hour days (T/F). 3) Define evolution. 4) Evolution is true/false? 5) Humans are a special creation without ancestry (T/F). Responses indicate a significantly large component of uncertainty and misinformation. Informed uncertainties are acceptable, whereas either no opinion or strong positions can be detrimental if resulting from true ignorance. Overall, there is less opposition to old earth than evolutionary concepts. Nearly half the students affirm long geological ages, but only about twelve percent agree that their own definition of evolution is reality. The strongest held belief is in the special creation of humanity (ninety percent). Trends according to backgrounds indicate that more scientific attitudes are favored by "mainline" church affiliation, upperclassmen, and possibly by science and humanities majors. Debriefing surveys have shown that initial opinions often change by course end. The data suggest that Christian students need opportunities to examine what are widely perceived as watershed issues by much of the Church.

The American Scientific Affiliation and the Moody Bible Institute: An Early Double Feature, 'The God of Creation' and 'City of the Bees'

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This presentation will feature the showing of two early Moody Institute films, God of Creation (1945) and City of the Bees (1962), and will recount the story of the founding period of ASA. The key figures in this drama are preacher-science showman Irwin Moon, Oregon State University Electrical Engineer F. Alton Everest, and Moody Bible Institute President Will Houghton. The interaction of these unlikely players and supporting cast in the context of WWII and the Bible Institute milieu produced enduring organizations and contributed to the evangelical renaissance of the last half century. The films reflect the values and attitudes toward science and Christianity which were held by the founders. The cinematography and perspective of the films have enduring value in spite of new technologies and shifting philosophical and sociological interpretations.

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**"Between Genesis and Geology: Evangelicals  
and Science in the 1920s and 1930s"**

In the aftermath of the Scopes Trial in 1925, few would have expected the heirs of fundamentalism in 1941 to found an association dedicated to demonstrating the harmony between Christianity and science. What makes the origins of that organization, the American Scientific Affiliation, all the more remarkable from the perspective of 1925 is that it drew upon professors, not pastors, with earned doctorates in science from mainstream academic institutions, and it was committed to a relatively open policy regarding theories about human origins, the very issue that had animated fundamentalists.

What this paper attempts is to trace the continuity between conservative Protestant attitudes toward science in the Scopes era and the period of the ASA's founding. Focusing strictly upon fundamentalist opposition to evolution obscures the broader evangelical context out of which fundamentalists' attitudes toward science emerged. Through an examination of the writings of Frank E. Gaebelin and J. Gresham Machen, and articles published by Moody Monthly in the 1920s and 1930s, this paper argues that fundamentalist perceptions of science were not out of character with both earlier and later evangelical habits of mind. To be sure, nineteenth-century evangelicals had not been so quick to condemn the findings of scientists. But evangelical accommodations of science had often been for revivalistic and, therefore, pragmatic reasons. Evangelicals writing about science during the fundamentalist controversy perpetuated the approach to science they inherited from the 19th century and their convictions proved an important stimulus to the founding of the ASA.

ABSTRACT

A Personal View of the ASA

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A short history of the earlier work of the ASA, including the programs of the first five annual meetings, is included. My work with the ASA is briefly described. Due credit is given for the work of a number of pioneers, with emphasis on F. Alton Everest and Irving A Cowperthwaite. Some testimonies concerning my work as a leader in the early work of the ASA is presented.

## HUMAN PERFECTION IN THE AGE OF BIOMEDICAL TECHNOLOGY

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The traditional role of medicine has been to cure disease and alleviate suffering. As we gain knowledge of basic biological processes, however, we are increasingly using our technology in the pursuit of perfection of appearance and performance. This raises very difficult questions about human existence.

- Should we seek a "cure" for natural aging?
- Is suffering a form of imperfection to be eliminated at all cost?
- Is the body a tool of human happiness to be reshaped in whatever way we desire?

Answers to questions such as these are beyond the scope of science. What principles, then, will direct the use of our technology? What images of human perfection will guide us as we cross into the 21st century?

Christ calls us to be perfect --- but that is perfect in spirit, perfect in love. It is through lives of love that the fullest meaning and purpose of human existence are most clearly revealed.

In this discussion we will draw on Christian figures such as Francis of Assisi, Martin dePorres, and Herman the Cripple to learn what their lives of great love can teach us about our relationship with the natural world, our response to suffering, and the stewardship of our bodies.

These lives are an underappreciated resource which can serve as a counterpoint and corrective for both our scientific theories and our moral philosophies. Through their diversity of circumstances and personalities, they reflect the varied expressions of love. Like pieces of a mosaic, seen together they form the face of Christ, the image of perfect humanity.

CONFORMING THEOLOGY TO MODERN SCIENCE: LANGDON GILKEY AS INSTRUCTIVE EXAMPLE

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Langdon Gilkey is a distinguished professor of theology at the University of Chicago Divinity School. He was the principal religion witness on behalf of the ACLU in the Arkansas Creationism trial. He is serving as a theological advisor to ASA's proposed TV series.

ASA members can profit from understanding Langdon Gilkey's theology. He does us a great service by exhibiting what happens to theology as the logical conclusion of presupposing that the methods of science are normative for understanding observable processes and historical events in space and time.

For Gilkey, the language of the miraculous that so permeates the biblical writings must be seen as arising out of a prescientific and therefore obsolete world view. Theological language is symbolic rather than referring to literal, historically factual events. What is existentially relevant and non-obsolete about this symbolic language is its theological content. This content must be made intelligible to the modern mind by reinterpreting theological symbols in a manner consistent with the modern scientific world view.

My paper endeavors to document carefully how Gilkey's presuppositions lead to a liberal reinterpretation of Christianity that is contrary to the historic sense of, for example, the doctrines in the ASA statement of faith. I propose to use Gilkey's theology to stimulate us to examine: 1) the extent to which we must embrace explicitly the historical reality of miracles and the supernatural as indispensable in our theology; and 2) the extent to which modern science is necessarily incompatible with such affirmations of the miraculous. I will conclude with brief comments on whether recent developments in physics and cosmology allow a view of science that is different from Gilkey's.

# The Role of a Professor's World View in Engineering Education

by

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As Christians we believe our world view helps us understand the physical world God has created. The role our world view should play in the engineering classroom is a more complicated issue. The practice of engineering is not value free. For example, someone could do high quality technical work for a destructive cause, such as chemical weapons development.

Even in areas appearing morally neutral, the commitment of engineering resources to one project inevitably means other projects are not going to be addressed. Overcommitment of technology to one problem could therefore have moral implications. Our world view should give us insight when we decide which engineering problems to address. A Christian world view is compatible with the fundamental canons of the National Society of Professional Engineers, which state: "*Engineers, in the fulfillment of their professional duties, shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.*"

Probably the most difficult part of engineering education is teaching engineering design. Students frequently have difficulty with assignments that have no unique answer. However, engineering practice involves the solution of open-ended problems, and students need to understand this process. Unfortunately, there are some faculty who use open-ended design problems to teach there are no absolute answers to any questions. Culver, Woods and Finch have proposed monitoring the effectiveness of design instruction by the degree to which the students embrace a relativistic world view at the end of the course. They say students are intellectually mature when they finally conclude "*the world is a changing, relativistic place.*" This is much more than using a world view to decide which engineering problems to address. This is imposing a particular world view upon engineering students. Most engineering students are philosophically naive, and may easily be convinced of this perspective. World views can play a useful role in engineering education and practice, but they should not be imposed upon the students under the guise of promoting intellectual maturity.

THE HARMONIOUS DISSONANCE OF EVANGELICAL SCIENTISTS:  
RHETORIC AND REALITY IN THE  
AMERICAN SCIENTIFIC AFFILIATION, 1941-1956

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The decades surrounding the Second World War witnessed a fair amount of rhetoric -- some helpful, some not -- treating the encounter between science and Christianity. Founders of the ASA were convinced that many Christians needlessly struggled in their faith because of misconceptions regarding science and its relation to conservative protestantism. Heading the list of their original purposes for the organization was a set of tactics aimed at the elimination of pernicious rhetoric which could harm both science and Christianity. In some cases members of the young ASA realized their objective of eliminating error through publication, discussion, and review. Yet they were learning themselves. In certain respects, therefore, the vision of just how the "facts of science" were to be "correlated" with scripture remained rudimentary and obscure. Consequently, in their efforts to articulate this alleged harmony between science and scripture, the unseasoned group of evangelical scientists failed to avoid producing their own dissonant chords. Potentially worrisome notes sounded in several episodes: ASA publishing efforts, discussions of flood geology, disagreements about the concept of evolution, and debate over constitutional revisions during the 1950's to name a few. These and other occasions elicited concern from ASA members sensing undesirable implications for their organization. Still, a remarkable spirit of harmony prevailed during these early years. This paper highlights selected features from the early decades of ASA history in order to illustrate ways the words and deeds of ASA members mingled to produce a fascinating harmony from dissonant chords.



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**Is the Apologetic Use of Scientific Evidence  
Founded on a False Premise?**

ABSTRACT

The propriety of the use of scientific evidence as a basis for rational commitment to Christianity has been questioned by many scholars across the spectrum of theology and science. This paper reviews numerous examples of scientific evidence that have been claimed to give rational support for belief not only in Judeo-Christianity but in other religions as well. Discussion of these cases is used to answer whether such evidence can provide, even in principle if not in practice, rational foundation for preferring one religion over another.

Examples discussed include: the relevance of archeological evidence to belief in Judeo-Christianity and Mormonism, medical science and the demonic theory of epilepsy, Exodus 14 and the finding of chariots beneath the Red Sea, meteoritic origin of the Kaaba Stone as a falsification of Islamic religious beliefs, the Orion Nebula and Seventh-Day Adventism, the results of linguistic studies of glossolalia and the claim of its divine/supernatural origin, scientific confirmation of the efficacy of Transcendental Meditation as an apologetic for Hinduism, and so on as time and space permit.

**A NEW CHRISTIAN APOLOGETIC:  
AFFIRMING THE SCIENTIFIC VALIDITY OF SCRIPTURAL COMMANDS**

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**ABSTRACT**

The young - earth, six - day creationist movement has not accomplished its stated goal of aiding evangelism by providing credible scientific support for their Scriptural position. Their message has been excluded from public educational institutions. Many of their fellow believers question both their Biblical interpretation and the validity of their scientific evidence. Regrettably, creationism has not been effective as a Christian apologetic.

If the Bible is the inspired word of an omniscient God, then we should expect to find scientifically valid instructions within its pages, even though the passages are not explicitly labeled "science", and even though the writers of the original manuscripts would not have recognized or understood any underlying scientific basis for the commandments.

Medical research has identified many Biblical instructions that have been shown to yield tangible health benefits if they are followed faithfully. The Scriptural commands are religious, not "medical" in nature; yet the Bible promises long life and well-being to all who obey them; and both professional medical journals and popular books attest to their effectiveness. *None of These Diseases* (S. I. McMillen, 1957) and *The Trusting Heart* (R. B. Williams, 1989) are two well-known examples of the latter.

"Early Encounters between Christianity and Science:  
The Case of the Middle Ages."

by David C. Lindberg  
Evjue-Bascom Professor of the History of Science  
Director, Institute for Research in the Humanities  
University of Wisconsin-Madison

The historical evaluation of the relationship between science and Christianity has often turned on the case of the Middle Ages. Two views of this first broad encounter between science and Christianity have gained wide currency. The older of the two, which grew out of Enlightenment thought in the 18th century, maintains that the medieval church was an obstacle to scientific progress and that modern science came into existence when the humanists of the Renaissance broke the shackles of medieval Christianity and (relying on the classical tradition) laid the foundation for the secularized science of the early modern period.

The other opinion emerged in the 20th century out of a curious mixture of Marxist social science and Christian apologetics. According to this second opinion, medieval theology provided fundamental assumptions about nature and natural law that made modern science possible. On this view, far from being an obstacle to scientific progress, medieval Christianity was the energizing force behind the emergence of modern science.

This lecture will reopen the question in the light of recent research. It will argue that both of the opinions defined above were designed to serve apologetic functions, that neither of them does justice to the historical evidence as we presently understand it, and that we need a more sophisticated model by which to interpret the historical relationship between science and Christianity. Such a model will be sketched and defended.

BURNOUT AND RECOVERY: THE PSYCHOLOGICAL EFFECTS OF INTENSIVE WORK  
BY SCIENTISTS AND OTHER MINISTERS ON PHYSIOLOGICAL RESPONSE

Stanley Lindquist, Ph. D. Professor of Psychology, Emeritus,  
Californian State University; President Emeritus, Link Care  
Foundation, Fresno, California

(Audio Visual requirements: remote controlled slide projector  
for slides on stress.)

It is a well-known concept that hard work can often create psychological effects on the human body. Further it is well known that if these effects cumulate, physiologically, the result can be severe burnout and often loss of ability to continue in the job where these effects occur.

These effects have been more widely publicized with respect to ministers and missionaries, and programs have been developed to help those who are willing to be so helped. However, similar factors operate in the scientific community as well, but are usually well hidden, excused, adjusted to, or ignored. Usually the problem is handled by leaves, decreased work load, reassignment, or some similar maneuver. This procedure does, at times, allow some readjustment, but the effects are often not effective, and may result in a life-time of frustration and minimal production. We have all seen individuals who have shown unusual promise who somehow slip through the cracks and spend the balance of their life just existing.

This paper will briefly delve into the physiological effects of stress through slides illustrating the mechanisms that are known to be involved at present, and some case studies. Following will be a description of some of the psychological underpinnings of effective, therapeutic, and restorative activity that has elements of doing more than being palliative. Finally a few programs for this kind of procedures will be outlined and be available for discussion.

Larry Martin  
Graduate Student, Department of Physics and Astronomy  
University of North Carolina at Chapel Hill

**“Faithful and New: God’s Character in Science and History”**

As a graduating graduate student, I know that the requirements for the Ph.D. are that a contribution be made to science which is both *new*, that is, never done before, and which is *faithful* to the discipline, that is, acceptable to the authoritative community of scientists. A third component is that the work be deemed *meaningful*. These characteristics of fruitful scientific work are also components of the character of God. The faithful Sustainer is also the Redeemer who makes all things new. He is also the Revealer who communicates meaningfully with His creatures. The heavily burdened terms natural, supernatural, and miraculous are better understood in the light of the biblical witness to God’s faithfulness, newness, and revelation. As with anything we need as creatures (food, drink, shelter, etc.), God is not only the source, but is in Himself the fulfillment of our deepest needs. This is one reason scientific work is so fulfilling and attractive to so many; it is an echo of our search for God. Our deep needs for security, surprise and significance will finally be fulfilled only by God. At base, scientific and historical investigations presume upon the faithfulness of God in such a way as to disallow anything “new under the sun,” so miracles are anathema. At the same time however, we desperately search for the new, something never before brought to light. But it is an affront to our dignity as researchers if we are simply told the answer, hence revelation is anathema. I propose to unravel the confusion of our God-given motives with our sinful responses so that we may better understand ourselves in relation to our vocation.

John A. McIntyre  
IT'S TIME TO REJOIN THE SCIENTIFIC ESTABLISHMENT  
Texas A&M University

Forty-eight American Jews have won the Nobel Prize and no evangelical Christians. Unless we are willing to concede that Christians are genetically inferior to Jews, we must conclude that there is some sociological factor that makes Jews more than 48 times as effective as Christians in scientific research. The removal of this factor is a challenge that should claim the resources of the ASA during its next 50 years.

What is this sociological factor? In contrast to the Jews, the evangelical Christian community does not encourage its young people to enter into a life of research and scholarship.

How can the ASA change this situation? We need to introduce into the evangelical community a respect and an appetite for science. The ASA television program is an ideal vehicle for this task. The ASA could also provide biographical sketches of Christians in science for church periodicals where they could share equal space with the missionaries. In fact, we already have this material in Walt Hearn's SEARCH articles. Excerpts from books such as "The God Who Would Be Known", which reveal the beauty and mystery of science could also be provided.

And, finally, we could collaborate with the Creation Research Society to reach the grass roots of the evangelical Christian community. They have a unique access to this community and their interests and ours would be the same.

Christians "invented" science in the seventeenth century. It's time for Christians to rejoin the scientific establishment and again participate in gathering the fruits of their invention.

Douglas V. McNeel  
San Antonio, Texas

THE SCIENTIST AS THE PRIEST OF CREATION:  
SAINT BASIL'S FOURTH CENTURY VISION OF THE RELATIONSHIP  
BETWEEN THEOLOGY AND SCIENCE

One of the great theologians of the Christian Church in the fourth century was Basil of Caesarea (c. 330-379). He was an energetic bishop, an eloquent preacher well-versed in classical literature and philosophy and an uncompromising defender of Christian orthodoxy against the Arian heresy. One of his great works, known as the Hexaemeron ("The Six Days of Creation"), consists of a series of sermons interpreting and illuminating the creation narrative of Gen. 1:1 - 2:3.

In this eloquent work, Basil articulates a mature and balanced understanding of the relationship between science and theology. A sensitive Biblical scholar, Basil recognized that the primary function of Scripture is "the edification and the making perfect of our souls" and not the resolution of technical scientific questions. He wisely rejected a blindly literalistic reading of the Bible in favor of an approach which sought out the authors' theological purpose.

With a naturalist's eye for observing and examining the intricate details of nature, Basil viewed the universe as a created system of natural "mechanisms," a quasi-independent entity whose existence was contingent upon a transcendent Creator. At all levels of the cosmic hierarchy, he perceived the wisdom of God, an experience which stimulated within him a profound sense of awe. Basil eloquently affirmed that the contemplation of the cosmic order and all of its intricate mechanisms ("the mysterious marvels of this great city of the universe") can lead us into a more profound worship of our Creator, an idea that prefigures Thomas Torrance's concept of the scientist as the priest of creation.

[The material for this talk is drawn from a chapter of a manuscript by the author of this abstract entitled Beyond the Beginning (Copyright 1988, 1989, 1990, 1991), a work which deals with the philosophical and theological implications of the Big Bang cosmology.]

**"Modern Technology Transforms Traditional Biology Instruction"**  
Roman J. Miller, A. Clair Mellinger, and Kenton K. Brubaker  
Eastern Mennonite College, Harrisonburg, Virginia 22801

We recently developed a beginning biology course, called "Biology as Inquiry," for undergraduate biology majors. This team-taught course uses a problem-solving, inquiry approach to biology. Formerly, the initial course for biology majors was "Human Biology," an anatomy and physiology course taught in a traditional descriptive manner.

In our new course, experimental laboratories involve the student with modern scientific technology and methods. Many open-ended protocols give students opportunity to plan aspects of the experiment. With an integrated software package linked to a data acquisition and analysis program, students use IBM compatible computers to write and revise laboratory reports, to store, analyze and graph data, and to interface with physiographs, pH/ion/temperature meters, and spectrophotometers.

Using lectures, discussions, readings, laboratories, we stress the role of critical thinking and analysis in the process of science. Students participate in data synthesis and analysis and form foundational scientific principles and understandings. Emphasis is placed on technical writing skills and on oral reports, based on primary literature research papers. Throughout varied biological topics, Christian thought is integrated into the course material. Although this approach de-emphasizes fact-memorization and emphasizes process, the course retains as much content, if not more, than the original one that it replaced. Additionally, students are more responsive, motivated, and interested in science.

Research supported in part by: Grant #USE-9051156, National Science Foundation and The D.B. Suter Endowment for Biology.



## PITFALLS FOR THE SCIENCE-THEOLOGY DIALOGUE\*

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Abstract: The dialogue between Christian theology and the natural sciences has grown considerably in the fifty years of the American Scientific Affiliation's existence. Interest in this dialogue today is evident across the religious spectrum, so that there is a healthy diversity of approaches. But a survey of the past half century also shows that some things can distort and confuse the dialogue. Here I look briefly at ten categories of what seem to me errors which should be avoided, or at least minimized, in work at the science-theology interface. Without any claim of completeness, the following will be considered:

- 1) Theological naivete
- 2) Automatic orientation toward process theology
- 3) Taking "creationism" too seriously
- 4) Too much philosophy and not enough science
- 5) Compartmentalization of concerns
- 6) Criticism of people rather than ideas
- 7) Ignoring denominational backgrounds
- 8) Failure to reach people in the pews
- 9) Retreat from the world
- 10) Sloppy analogies

Specific examples of some of these problems will be given, and some recommendations will be made. Matters of particular interest to members of the A.S.A. will be emphasized here, but attention will also drawn to points that concern others involved in the science-theology dialogue.

\* This paper is to be presented at the 1991 Annual Meeting of the American Scientific Affiliation in Wheaton IL.

## THE SECULAR UNDERVALUING OF SCIENCE

by Edwin A. Olson

Whitworth College, Department of Physics and Geology

In secular circles one is most likely to find an overselling of the potential of modern science; the second Humanist Manifesto (1983) is a typical example. But today there is also a growing countercurrent in secularism which traditional secularists would decry as a failure of nerve. It is a view in which science is seen as merely one of many acceptable options on the road to "truth". Modern science, after all, is a child of Western Civilization. And who would think of advocating a position so myopic and so arrogant as to challenge the rising status of cultural egalitarianism? Thus, there is a growing take-it-or-leave-it attitude toward scientific knowledge. Perspectives of three authors illustrate this trend: James Burke (The Day the Universe Changed), Martin Goldstein (The Experience of Science) and Stephen Toulmin (The Discovery of Time). Perhaps we are seeing a covert admission that science fails to answer ultimate questions and a response similar to that of Pontius Pilate, "what is truth?" For the scientist who is a Christian this trend is both good news and bad news. It is good news that some secularists are admitting that science has its limits. But it is bad news if a door to subjectivity is being opened that may allow the entrance of seven other spirits worse than the one ejected. The final condition could well be worse than the first.

UNDERSTANDING THE TIMES  
Kenneth V. Olson

Which worldview has our public schools by the throat and is destroying the morals of our youth? David A. Noebel and Summit Ministries of Manitou Springs, Colorado is introducing the story of the Biblical Christian, Marxist/Leninist, and Secular Humanist worldviews in a textbook uniquely designed to help Christian youth through their high school and college experience. This book chronicles the idea that to win a battle in the Christian life, you must understand who you are fighting and their fundamental weaknesses.

The Bible commands us to 'get wisdom, get understanding.' A war of ideas rages throughout our nation, and Christians are in danger of losing the battle for the minds of our youth. If present trends continue, hundreds of thousands of Christian young people will turn their backs on their Christian faith before they finish college! What is responsible for this tragic scenario? The religious worldviews of Secular Humanism and Marxism! How can the next generation of Christians retain their faith when faced with secular educators and employers? The answer lies in their ability to distinguish between Christian values and Secular Humanist or Marxist values.

Understanding the Times gives readers the basis for seeing how seemingly unrelated issues fit together and give them the "big picture." For example, this text clarifies the relation of crime, poverty and drugs to the break-up of the family unit, the role of the United Nations in the new world order, etc.

Christians will be able to identify the Biblical position in areas such as philosophy, biology, economics, law, politics, psychology, and sociology, distinguishing the Christian position from that of the Secular Humanist and Marxist. The implications of each worldview are brought into the open, where students can compare the fatal inconsistencies of Marxism/Leninism, Secular Humanism and the New Age movement with the coherence and truthfulness of the Biblical Worldview.

Professor Allan Bloom argues that public schools train virtually every student to believe that values are "relative" --- that there is no "right" or "wrong." The practical application of this indoctrination is staggering. It strips students of their absolutes, effectively eliminating their reasons not to take drugs or engage in destructive behavior. Worst of all, it denies them the opportunity to strive for excellence.

Understanding the Times seeks to remedy this situation. The text is based on 28 years of research and experience equipping thousands of young people to make an impact on the world for Jesus Christ. It will empower them to unlock their latent leadership potential so they can take a stand for what they believe.

Envision thousands of students astounding their professors and peers with the breadth and clarity of their knowledge --- not out of pride, but out of concern. Such an army of leaders could have a profound impact on society and its culture!

But this work is not only significant for teenagers; anyone with a sincere desire to better comprehend the Christian point of view will benefit from this well-documented refreshingly uncompromising approach. Come and see some of the methods and materials to be used in this exciting new curriculum!

"The Relation Between Revealed Truth and Scientific Truth in the Human Arena"

Rev. Daniel J. Price,

PhD Systematic Theology (Aberdeen, Scotland 1991)  
Pastor of The International Protestant Church of Zürich  
Zürich, Switzerland

It is an unfortunate fact of modern epistemology that the conceptual bridge between scientific truths and revealed truth has been stretched almost to the breaking point. Since the time of the Enlightenment, especially under the influence of Newton and Kant, the chasm between revelation and science has tended to widen. This is unfortunate because it tends to depict the scientific enterprise as the purely objective study of 'brute facts'. On the other end of the spectrum, this bifurcation is unfortunate because it tends to limit religion and morals to the realm of privately held subjective feelings which can have little to do with the space-time world which the scientist describes. The commonsense views of both the Scriptural authors and many theistic scientists would deny the possibility that there could be any cleavage between the facts of science and the values of religion. But the aggressive secularisation of modern society has increasingly driven a wedge between science and religion. The attempt to bring these two halves together in order to better form a balanced conceptual whole is therefore understandably important.

Is there a place where the revealed truths of Scripture and the scientific discoveries about ourselves and our world come together in a way which might be compelling? I believe so. I propose that the 'place' where dialogue can occur between science and religion is found in the 'human arena'. By 'human arena' I mean the sphere where human persons live, act, and form meaningful relations. It is the human arena where both science and religion connect noticeably (though not exclusively).

In the past 150 years scientists have measured the patterns of human behaviour with increasing accuracy. It is an implicitly accepted belief of the human sciences that human beings can be the *object* of scientific studies, as well as *subject* of scientific enterprise. As psychologists have continued to study the nature of human development, it has become apparent that interpersonal relations--especially at the earliest stages of life-- provide some very vital building blocks for the human *psyche*. This discovery has stemmed, among others, from one of the post-Freudian schools of psychoanalytic theory which is called 'object relations' psychology. In 'object relations' psychology external interpersonal relations have a demonstrated impact upon the internal psychical developments.

Might the discoveries of object relations psychology pave the way to explore analogies between the Biblical concept of the person, and the scientific concept of the person? I propose so.

"Who is *God*?" This is the first topic of concern with the Bible. The second concern of the Bible is: "Who are *we*?" In addition to God, the Bible also probes for answers to human identity. While the Biblical study of human nature is not undertaken in a scientific manner, it is nevertheless *undertaken*. We should not overlook the fact that the person, human beings in their manifold diversity, are important to both theology and the human sciences. It is therefore in the 'human arena' where we might expect theology and science to meet in some meaningful way and reveal certain analogies of meaning.

I propose that the relation between the Judeo-Christian concept of 'encounter', and the modern psychology's emphasis upon the importance of primary object relations, can provide many striking analogies. These analogies are compelling enough that the relation between the human sciences and Biblical anthropology need not be seen as hostile or mutually exclusive. They are rather, exactly what one would expect to find when we compare the revealed truth about ourselves, with the truths which certain branches of human science are beginning to uncover about the creature we call *homo sapiens*.

**"TWO WORLDS ARE OURS":  
THE SCIENTIFIC AND THEOLOGICAL WRITINGS  
OF REV. HUGH MACMILLAN (1833-1903)**

Stanley Rice  
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The Rev. Hugh Macmillan, clergyman and botanist, was a prominent Scottish writer of the late nineteenth century. He published 24 books principally concerning Christian insights that can be obtained from the study of natural history. Although much of his approach has been superceded by more recent scientific discovery and a more realistic assessment of the relationship between science and theology, Macmillan was highly gifted with the ability to recognize common themes in natural history and Christian theology, themes from which I believe modern Christians and scientists could derive great blessings.

Macmillan's principal training was as a clergyman of the Free Church of Scotland, in whose congregations and colleges he was minister and lecturer, and whose General Assembly he moderated. He also had extensive training in plant taxonomy and field botany. Like many earlier clergymen he wrote books to introduce laymen to natural history. But he brought his scientific and theological interests together in his writings. He believed that many things in the natural world were created by Christ "as a magnificent diagram to illustrate His spiritual lessons and to show forth His glory," and that we should be "interpreting God by our knowledge of nature, which He designed not to be a veil, but a revelation" (1867). For instance, from his study of botany he knew that a plant was only alive and healthy as long as it continually grew, and this growth necessitated the shedding of older plant parts; and that fungi were responsible for both the cycling of minerals through the natural world but also for disease. From this he derived a tremendous spiritual lesson, "It is through loss that all gain in this world is made" (1871).

His works are now all out of print, but during his life his works went through many editions and were translated into many European languages. I wish to introduce the Christian scientific community to some of Macmillan's insights.

Joseph L. Spradley, Professor of Physics  
Wheaton College, Wheaton, IL

Abstract for 1991 ASA Annual Meeting

Changing Views of Science and Scripture:  
Bernard Ramm and the ASA

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. His controversial book, The Christian View of Science and Scripture, marked the return of evangelical theology to a positive and scholarly assessment of science in relation to the Bible after a half century of neglect and conflict. An examination of his theological writings on science and his involvement with the ASA reveal a series of changing views of science and scripture that has influenced evangelicals at each stage.

Three stages in Ramm's thinking about science and the Bible can be identified. His earliest writing, including papers in the first issues of the Journal of the ASA, reveals a critical view of science; but his approach to Biblical interpretation was broad enough to minimize conflict by accepting the empirical results of scientific investigation. A more positive attitude toward science is evident in his 1954 book, which adopted a concordist view of science and scripture in seeking to work out a harmony between them. In developing the theological methods of Karl Barth in his later writings, Ramm moved toward a contextual view of scripture that emphasized the changing cultural contexts of revelation in a way that illuminates theological understanding while avoiding most conflicts with science.

Joseph L. Spradley, Professor of Physics<sup>†</sup>  
Dorothy F. Chappell, Professor of Biology  
Wheaton College, Wheaton, IL

Abstract for 1991 ASA Annual Meeting

Contributions of Wheaton college Women to the Early ASA

Among nearly 200 contributors to the first 15 volumes of the Journal of the ASA (1949-1963), only three were women, and all of them were Wheaton College teachers. Their professional lives and contributions provide interesting case studies of the role of women in the early years of the ASA, and in the sciences at Wheaton College at the time. Among 113 faculty members at Wheaton in 1950, 41 were women (36%) including five out of 20 (25%) in the sciences. Among 156 Wheaton faculty today, 31 are women (20%) including three out of 27 (11%) in the sciences.

The three women contributors to the first 15 volumes of the JASA were Angeline Brandt, Cordelia Erdman and Marie Fetzer. All three were present at the fourth National Convention in 1949 at the Bible Institute of Los Angeles, where papers were presented by Brandt and Erdman. Papers were also presented at the fifth National Convention in 1950 at Goshen College by Erdman and Fetzer. Dr. Brandt contributed one article to the JASA on mathematics in 1950. Erdman published four articles between 1950 and 1957 on paleontology, one of which was also published as a chapter in the ASA symposium volume Evolution and Christian Thought Today (Mixer, 1958). Fetzer contributed one article to the JASA on fossils in 1951, and co-authored a chapter on anthropology in the ASA sponsored book Modern Science and Christian Faith (Everest, 1948).

<sup>†</sup>Presenter

**TITLE: The consequences of an exclusively materialistic world view**

NAME: Mark A. Strand  
graduate student  
University of Minnesota

DATE: April 8, 1991

Contemporary institutions of education in the United States are succeeding in rooting out from their curricula any vestige of faith in God or evidences of His existence. Despite the constitutionally provided freedom of religion, the university has managed to so undermine faith in God, that we have arrived at a point in time where universities are free from religion, and will not entertain any argument which appeals to God or His action. Needless to say, the fruit of the university, her students, have not gone unaffected. The prevailing hedonistic attitudes and sense of hopelessness betray the spiritual consequences of such a denial of reality.

There is a manifest hypocrisy in denying the spirit world in the academic setting, while knowing by experience that there is more than just the material world. And this hypocrisy is not without its consequences. Based upon this materialistic view of the world as taught in the biological sciences, upon what does one base his ethics? What kind of world would we live in if biologists returned home after work each day and responded to their families in a manner concordant with the view of reality they have espoused all day? Love, pain and friendship will come to mean nothing.

Fortunately many in physics have demonstrated a profound interrelatedness of the cosmology of the world. One cannot talk about objective versus subjective systems any longer. We simply do not live in that kind of universe. It is very difficult to incorporate this holistic world view into the biological sciences. But if it is true, and all Christians would agree that it is, then we have a solemn obligation to implement this into our teaching.



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## A BIBLICAL VIEW OF ANIMALS AND MAN

The New American Standard Bible is replete with 3562 generic and specific references to animals. Job advises, "But now ask the beasts, and let them teach you; and the birds of the heavens, and let them teach you." Although this passage was an ancient call to the careful observation of animal behaviors, is there any true justification for modern day vivisection in a scientific culture? In his recent book, Christianity and the Rights of Animals, Andrew Linzey argues for the "Theos Rights" of Animals which include their negative rights not to be vivisected or eaten and their positive rights to be cared for and respected. Careful reading of the text betrays the author's subtle blurring of the boundary between man and animals to justify his position. Animal rights issues are inherently "religious" in context, and for this reason neither scientific assertions alone nor the reasonings of animal activists can ever be sufficient to settle polarized viewpoints. The first chapter of Genesis addresses the man/animal distinction by selecting two key Hebrew verbs including bara (to create, call into being) and asah (to press, squeeze, make, differentiate). Keying on the verb bara, not one, but three separate creations can be denoted covering "physical stuff" (plants and minerals), "mental stuff" (beasts and animals), and "spiritual stuff" (only man). To create an animal required two creations, but to create a man required three creations, defining the tripartite nature of the biblical man. Thus the sharp boundary between man and animals hinges not so much on the degree of brain functions, but on the presence or absence of the human spirit. From this starting point, and with full respect for all life, it is reasoned that the scientist can find biblical justification for legitimate vivisection.

ABSTRACT

TEACHING EVOLUTION AS NON-SCIENCE:

CALIFORNIA IS STILL NUMBER ONE IN ABUSING SCIENCE

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Last year I presented examples of teaching evolution as non-science from California's 1990 Science Framework. Chief abuses included failure to define terms and use them with consistency, and failure to present evolutionary science as open to inquiry and free of dogmatism. This year I will present examples from "Evidence for Evolution" chapters in college textbooks and exhibits in museums. Switching the meanings of evolution is not the only shell game in town. Evidence and inference is switched with a slight of hand that would make a magician envious. Attention will also be focused on examples of science professors who seem to regard "Man is the result of purposeless and natural process that did not have him in mind," as a scientific meaning of evolution.

**RADIATION PHOBIA: A PERSONAL PERSPECTIVE ON PUBLIC IGNORANCE AND FEAR**  
David L. Willis, Professor Emeritus of Radiation Biology  
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Public and media concerns about the supposed hazards of environmental radiation and radioactivity are often at odds with scientific data and actual experience. The confusion between high dose vs. low dose effects, acute vs. chronic effects, the non-uniqueness of radiation damage, the supposed genetic effects of radiation in humans, the relative effects of natural vs. manmade radiation, and the stochastic nature of low level radiation effects will be examined. The demand for absolute safety and failure to recognize the relative risk in all human enterprises will be evaluated. Examples will be drawn from the author's 35 years of teaching, research and public service in the field of radiation biology. Specifically, experiences from his service as a consultant in radioecology in connection with the Trojan Nuclear Plant, public testimony regarding "wastes" from the Teledyne-Wah Chang zirconium plant, and membership on the Hanford Health Effects Panel will be cited. Parallels between the attitudes and actions of the more radical antinuclear zealots and those of some of the more extreme recent creationists will be drawn based on the author's experience with both in public debate.

ABSTRACT

C. Gordon Winder, Department of Geology  
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DIRECT OBSERVABLE GEOLOGIC EVIDENCE ESTABLISHES THAT EARTH IS OLD !!!

In 1989, a University of Calgary professor of communications conducted a trans-Canada telephone survey of 2000 adults to determine public knowledge of science. Some general conclusions are that only 37% can name a Canadian scientist; 15% think the sun goes around the earth and 6% don't know; and 54% MISTAKENLY think that earliest mankind and dinosaurs lived at the same time. A question about the age of the earth was not asked but a similar survey in the U.S. revealed that a majority think that the earth is young or do not know.

Direct, observable geologic evidence which establishes that EARTH IS OLD includes - a) the gorge and exposed bedrock of the Niagara River; b) the 80 foot bed of Silurian salt at a depth of 1600 feet in the Goderich(Ontario) salt mine, which can be traced continuously in the subsurface almost across Michigan; c) a 14,000+ foot section of Pennsylvanian sandstones and shale at Joggins, Nova Scotia with 33 levels of upright tree trunks and 65 thin beds of coal; d) the Eocene Green River shales of Wyoming with an estimated 6 million thin cycles of marlstone and kerogen; e) up to 30,000 feet of Early Proterozoic Belcher Group exposed on islands in Hudson's Bay consisting of greywacke, argillite, dolostone, and stromatolite beds; and a multitude of other examples.

That EARTH IS OLD is basic essential doctrine of the geosciences.

## THE USE OF EXTRA-BIBLICAL DATA IN INTERPRETING THE DELUGE ACCOUNT

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Biblical commentators throughout church history have considered extra-biblical evidence in their discussions of the biblical deluge, but they have often used out-of-date information. The patristic and medieval writers appealed to remnants of the ark, fossils, deluge traditions, and the world's fauna as evidence of the biblical story. The discovery of the New World yielded new evidence concerning animal migration and the capacity of the ark. Although scholars tried to square the discoveries with a global deluge, some commentators seemed oblivious to the new evidence. Luther, for example, appealed to fossils as evidence of a worldwide deluge but was silent about the implications of New World discoveries. Late 17th century Europeans explained sedimentary by a global deluge. Their views were discredited by the dramatic geological investigations of the following century, yet influential commentators of the early 19th century persisted in espousing these discredited theories. Only when Hugh Miller, Edward Hitchcock, and John Pye Smith explained the latest scientific information in theological journals did conservative commentators reflect acquaintance with the latest geological and biogeographical knowledge. In the present century, many commentaries are again seriously in error because authors do not have access to accurate information. If biblical commentators want to support their interpretations of the deluge account with legitimate extra-biblical data, they need the input of qualified Christian scientists. It is crucial that knowledgeable Christian scientists educate biblical scholars about science by writing for theological journals.