

Abstracts

Paper

“The Marvelous Must: Science and Spirit in the Works of George MacDonald”

Stacey E. Ake
Metanexus Institute
Philadelphia, PA
sake@pc4rs.org

The Marvelous Must: Science and Spirit in the Works of George MacDonald

“I have never concealed the fact that I regarding him as my master; indeed I fancy I have never written a book in which I did not quote from him.” —C. S. Lewis

Although perhaps best known for his fantasy literature, children’s writing, and lengthy novels, George MacDonald (1824–1905) was also an avid observer and student of nature. While a chemistry student at Kings College, Aberdeen, he was a tutor and teacher of mathematics and natural science.

Had his family had the financial wherewithal, it is quite likely that MacDonald would have gone to Germany for further study upon graduation. But that was not to be, and it was a worldly reality, compounded by his growing otherworldly call to the ministry, that was to shape MacDonald’s life. Yet it is neither as a scientist nor as a parish minister that MacDonald has left his mark of the world, but rather as a novelist and as a preacher of “unspoken sermons.”

In my paper, I will make three different movements to clarify what I believe to be MacDonald’s position on the nature of nature.

The first part will be devoted to looking at the role of nature as created and as creature in his novels, and how MacDonald perceived God to be at work in and through nature. Is it possible to look at the state of the natural world and see something more than Tennyson’s “nature red in tooth and claw?”

The second part, drawn mostly from his “unspoken sermons” and essays will explore the theological bases from which MacDonald drew and then justified his view of nature. For example, what is the role of sacrifice or kenosis in the natural world?

The third and final part will be an attempt to outline a coherent whole to MacDonald’s view of nature and to use the insights garnered from this process to address, in particular, the topic of evolution and intelligent design, for MacDonald was a contemporary of Charles Darwin and Alfred Russell Wallace as well as a close friend of Charles Dodgson aka Lewis Carroll, the mathematician, logician, and author. Thus MacDonald was aware of, and commenting upon, these scientific debates as they arose.

The title is taken from MacDonald’s novel the Marquis of Lossie, in which mention is made of a “secret of life” which is “the vital germ of all that is lovely and graceful, harmonious and strong, all without which no poet would sing, no martyr burn, no king rule in righteousness, no geometrician pore over the marvelous must.”

A History of Creation Views Held by Scientists

This presentation is a summary of the major points in my two recent books.¹ It is a chronological account of views about creation expressed by scientists, from the fourth century to the end of the twentieth century. It documents the reverence shown by some scientists to the biblical statements about creation. More emphasis is devoted to the writings and statements of astronomers and geologists than to biologists, but the effects of Darwin's theory on biblical belief in the latter part of the nineteenth century are documented. The beginnings of the Big Bang theory are discussed, including a prediction in the early 1930s that its remnants might someday be detected. The exciting account of the first detection of Big Bang remnants late in the twentieth century is presented, followed by confirmations of that explosive event by many earth-based and space-based measurements. The gratifying effect of such findings on belief in the biblical statements about creation, on the part of highly respected scientists of world renown, is documented.

¹Joe T. Ator, *The Return of Credibility: Scientific Discoveries Support Belief in the Bible's Creation Account* (New York: Vantage Press, 1998); and —, *Darwinism and the "Creation Science" Movement* (Fort Worth, TX: Star Bible Publications, 2000).

PCR Detection and Strain Characterization of *Plasmodium falciparum* in Symptomatic Children in Zambia

Severe malaria, in the form of severe malarial anemia or cerebral malaria, accounts for a disproportionately high amount of malaria mortality, but the complete framework of severe malaria causation is not known. The suggestion of *P. falciparum* strain variation enhancing virulence and precipitating severe disease has not been adequately documented. We investigated the possible correlation between *P. falciparum* strains and severity of disease in thirteen Zambian children in three diagnostic groups: severe malarial anemia, cerebral malaria, and uncomplicated malaria. Parasite genes for merozoite surface proteins 1 and 2 (MSP-1 and MSP-2) were successfully amplified by nested polymerase chain reaction (PCR). MSP-1 and MSP-2 showed extensive size polymorphism, reflecting previous studies. Gene distribution patterns among the diagnostic groups were inconclusive due to limited sample size. This is the pilot year of a five-year malarial anemia study. Suggestions are given for continuance of parasite strain and disease severity studies at this site.

The Science and Ethics of Embryonic Stem Cells: Promises and Perils

Stem cells are pluripotent cells which retain the capacity to differentiate into highly specialized cells, tissues and organs. If scientists can unlock the secrets to control the direction of their differentiation, they hold enormous potential for providing better treatments and perhaps cures for conditions such as diabetes, Alzheimers, Parkinsons, and spinal cord injuries. Human stem cells have been isolated and propagated in culture from (1) adults, (2) placentas and cord blood at birth, (3) ~100-cell unimplanted embryos, and (4) 5- to 9-week-old aborted fetuses. This presentation will briefly look at the present

Poster

"A History of Creation Views Held by Scientists"

Joe T. Ator

26841 Oakflat Drive
Tehachapi, CA 93561
jator@tminet.com
661-821-2023

Paper

"PCR Detection and Strain Characterization of *Plasmodium falciparum* in Symptomatic Children in Zambia"

Andrew C. Babcock

Messiah College
One College Ave.
Box 5038
Grantham, PA 17027
acbabcock@yahoo.com
717-796-4721

Bioethics symposium

"The Science and Ethics of Embryonic Stem Cells: Promises and Perils"

Hessel Bouma III

Dept. of Biology
Calvin College
3201 Burton Street, SE
Grand Rapids, MI 49546
boum@calvin.edu
616-957-6401

status of stem cell research, then turn to the ethical and public policy dilemmas we are facing from a Christian perspective. What is the moral status of embryos and fetuses? With 100,000 to 600,000 “left over” frozen embryos and more than one million aborted fetuses in the United States alone each year, is it morally permissible to derive and use stem cells from them? Should the derivation and use of embryonic stem cells be banned altogether, limited to the private sector, or supported in the public sector with stringent regulations? Should we permit the intentional creation of human embryos as sources of stem cells via *in vitro* fertilization (Jones Reproductive Institute), cloning (Advanced Cell Technologies), human-animal hybrids, parthenogenesis, or genetically engineered embryos incapable of sustained development in utero? The presentation will conclude with a proposal for allowing embryonic stem cell work to go forward but with a call for limiting the autonomy and utility of reproductive choices.

Paper

“Improving the Technique for the Intracellular Uptake of Bacteria Using Murine Peritoneal Phagocytes and Fluorescence Phase Contrast Microscopy”

Kimberly M.

Brothers

Mentor: Professor Jeff Erikson
Messiah College
Dept. of Natural Sciences
Grantham, PA 17027

Improving the Technique for the Intracellular Uptake of Bacteria Using Murine Peritoneal Phagocytes and Fluorescence Phase Contrast Microscopy

Many bacteria are introduced to the human body during the ingestion of contaminated foods. The foreign antigens are taken into the body’s cells by macrophage and neutrophil phagocytic cells. This is a complicated yet fascinating response of our body’s immune system. In order to develop a better understanding of how our body responds to these foreign antigens, a model is necessary to study these interactions. Bacteria with a live/dead fluorescence dye was added to murine peritoneal cells and incubated. The cells eventually phagocytize the bacteria. The fluorescence dye contains SYTO 9, which will stain all bacteria with intact membranes green, and propidium iodide, which will stain all bacteria with disrupted membranes red. Our results indicate that a greater number of bacteria from uptake of phagocytes stained green than red thereby producing a greater ratio of live bacteria over dead bacteria.

Poster

“Thinking God’s Thoughts after Him”

Ronald A. Buelow

700 Luther Drive
Mankato, MN 56001
rbuelow@blc.edu
507-388-3453

Thinking God’s Thoughts after Him

Humans have long copied the designs which God has placed into the universe. He has placed these designs in us, in the many creatures of his creation, and in the elements and substances that are part of his marvelous creation. There is a whole branch of science devoted to studying God’s designs and making good use of them in our own designs. This science is called bionics. Rarely do we give God the credit for these perfect, original designs. This multimedia presentation is aimed at giving God the credit. It should also amaze the viewer how many high tech designs are in creation, and how these designs are being used today to make new high tech devices. A special emphasis will be given to current and future computer technology. The lecture shows clearly how design and mathematics itself are created by God, with people discovering it small piece by small piece. This presentation highlights numerous Christians who were and are scientists, who openly confess their Christian faith as they pursue their studies.

Why Believe Scientists' Accounts of Religious History?

A number of scientists (e.g., Richard Dawkins, Carl Sagan, Francisco Ayala, and Daniel Dennet), who are hostile to Christianity, make statements concerning religious intellectual history for which there is scant supporting evidence or abundant contradictory evidence. These statements typically are deduced from or used as evidence to support the conflict thesis, the idea that science and religion are rival explanations for our world. I present examples of these statements. I also present examples of contemporary Christians' acceptance of these questionable accounts of religious history, and explore possible historical and contemporary explanations for this acceptance.

Reading Old Testament Creation Passages

I suggest that Christian believers who hold one of the positions in the "creation/evolution debate"—creationism, independence, intelligent design, and full integration—all take the Bible very seriously. My question is: How do we take our book, and read and apply it with contemporary problems in mind—in particular, problems related to contemporary issues relevant to both science and faith? This may be a crucial (maybe THE crucial) question in the creation/evolution discussion. Recently James Wm. McClendon, James M. Smith, and Nancey Murphy have done some pioneering work on the theory of language that has, in my opinion, important applications to biblical studies. In this presentation, I will summarize their work in this area and then apply this to four major creation passages from the Old Testament: Isa. 40:12–31, Job 38–41, Gen 1:1–2:3, and Gen 2:4–25, with the goal of exploring two questions: (1) What was the intent of the sacred writer in addressing the community of faith in the way that he did? and (2) Why was a particular passage written (spoken) in the first place? Investigating these questions in the study of a particular biblical passage—or a series of passages related to the same topic—may be a helpful step to be taken prior to applying the passage to questions of contemporary interest.

Responsible Stewardship: What About Pigs?

In our role as stewards of creation, we often face contradictions. Francis Schaeffer admonishes that while we have the right to kill ants in our houses, we have no right to harm them out in creation, where God meant them to be. Likewise, we may presumably control pests in our gardens, but not when they occur in the "wilderness." However, notions of "wilderness" and "pest" are not unambiguous. John Muir promoted the concept of wilderness as entirely untrammelled by humankind, but does this perspective hold any validity in world irreversibly altered by humankind? What if the "pest" in question is a warm-blooded animal like us, and clearly suffers from the cruel treatment necessary to control it? These questions will be examined in a case study of the controversy over controlling pigs and other ungulates in order to preserve extremely vulnerable island ecosystems in Hawaii. In this, the "endangered species capital" of the USA, various groups are protesting the cruelty of snaring non-native pigs by agencies such as the Nature Conservancy. What is God's perspective? He sees the sparrow fall, yet does he not place value on ecosystem integrity, and preservation of endangered native species? Does a

Paper

"Why Believe Scientists' Accounts of Religious History?"

Joel W. Cannon

60 N. Watson Ave.
Washington, PA 15301
jcannon@washjeff.edu
724-223-9362

Paper

"Reading Old Testament Creation Passages"

Richard F. Carlson

318 Marcia St.
Redlands, CA 92373
richard_carlson@redlands.edu
909-792-0792

Paper

"Responsible Stewardship: What About Pigs?"

David R. Clements

Dept. of Biology
Trinity Western University
7600 Glover Road
Langley, BC V1Y 2Y1
Canada
clements@twu.ca
604-888-7511 x3280

Wayne Corapi

Dept. of Biology
Trinity Western University
7600 Glover Road
Langley, BC V1Y 2Y1
Canada

Plenary Speaker

“Faith and the Human Genome”

Francis S. Collins

Director, National
Human Genome
Research Institute
Washington, DC

land ethic, like that promoted by Aldo Leopold, prevail over an individual ethic, that places greater value in suffering individual organisms? Can a Christian ethic be developed to work for redemption of all creation, but yet be sensitive to the suffering of animals?

Faith and the Human Genome

Despite the best efforts of the American Scientific Affiliation to bridge the gap between science and faith, few gatherings of scientists involved in biology include any meaningful discussion about the spiritual significance of the current revolution in genetics and genomics. Most biologists and geneticists seem to have concluded that science and faith are incompatible, but few who embrace that conclusion seem to have seriously considered the evidence.

From my perspective as Director of the Human Genome Project, the scientific and religious world views are not only compatible but also inherently complementary. Hence the profound polarization of the scientific and religious perspectives, now glaringly apparent in the fields of biology and genetics, is a source of great distress. Hardliners in either camp paint increasingly uncompromising pictures that force sincere seekers to choose one view or the other. How all of this must break God’s heart! The elegance and complexity of the human genome is a source of profound wonder. That wonder only strengthens my faith, as it provides glimpses of aspects of humanity which God has known all along, but which we humans are just now beginning to discover.

Paper

“Chaos and Providence”

Jason A. Colwell

Dept. of Mathematics
Caltech 253-37
1200 E. California Blvd.
Pasadena, CA 91125
colwell@its.caltech.edu
626-395-4335

Chaos and Providence

Chaos theory has provided a new understanding of many systems in nature. Though chaos and the acts of God would seem by nature to be disparate (1 Cor. 14:33), “chaos,” as it is conceived in mathematics and the physical sciences, could actually be a way that God interacts with the physical world. I offer an explanation as to how God can use random events within a chaotic system to act providentially in his creation. There are two components to this process. First, divine choice is the determinant of fundamentally random events. Second, chaos allows small occurrences to have large effects at a later time. Together, these provide a means whereby God can interact with the universe in accordance with the laws of nature. As a consequence, the two-fold belief in the providence of God and the randomness of nature is entirely consistent. While my purpose is not primarily apologetic, considerations such as these could provide a negative apologetic, answering the skeptic’s claim that belief in God is unreasonable given the chaotic dynamics of the universe.

Paper

“Internal Medicine, Medical Ethics, and History of Medicine: The Contributions of Gerrit A. Lindeboom”

Harry Cook

Internal Medicine, Medical Ethics, and History of Medicine: The Contributions of Gerrit A. Lindeboom

At a time of increased interest in topics related to religion and science, medical ethics, and history of the sciences, it is worthwhile to call attention to the contributions of Gerrit Arie Lindeboom (1905–1986). While holding several positions in pathology and internal medicine at the new Faculty of Medicine at The Free University of Amsterdam, starting in 1950, he was also given

responsibility for *Encyclopedia of Medicine*. He wrote and spoke about many topics in medical ethics, emphasizing his Christian commitment and his respect for human life. Almost two-thirds of the 600 articles and books he published were devoted to the history of medicine. His studies on Herman Boerhaave, Dutch botanist, chemist, and physician, were published from 1955 to 1964, while his book, *Herman Boerhaave: The Man and his Work*, appeared in English in 1968; a new edition was published last year. In 1978 he initiated an association for medical ethics in The Netherlands, the Stichting Ethica Medica, which would grow to become the center for medical ethics that now bears his name. The Lindeboom Instituut studies, and speaks to, topics of medical ethics in the Dutch context from a Christian position.

A New Era in Christian University Cooperation: Formation of a Science Consortium

A consortium of California Christian Universities has been formed in order to bolster science-faith education among the faculty, students, and administration of six participating schools in Southern California. The mission is to establish collaborative relationships between science faculty and students such that the potential will be realized of offering a joint major in Natural Science, supporting each other by the offering of specialized courses, establishing an on-line student journal and promoting inter-institutional seminars relating to the faith-science dialogue. During this third year the California Consortium of Christian Colleges and Universities (CCCCU) has created a charter, defined membership, established protocol for curricular inclusion of the Natural Science major by member schools and initiated on-line journal known as SOAR <<http://soar.pagehere.com>>. The motivation prompting the organization of this consortium is the knowledge that Christian College faculty and students science and faith experience can be enhanced through this type of networking and sharing of resources. Networking between science departments and schools will, we believe, stimulate faculty conversations on subjects in their field as well as motivate heightened interest in faith integration themes, participation by students in Inter-University seminars and/or courses or research should provide an awareness of and access to the richness of the unity and diversity represented by participating schools. The on-line journal will provide an impetus and challenge to hold each other's faculty and students accountable in terms of an opportunity for a forum for scholarship and the challenge of peer review process. Also significant is that by modeling collaborative relationships, students of the member schools understand more clearly the underlying unity that is possible within the kingdom of God.

Sub-Authors:

W. Stangl

Dept. of Mathematics and
Chair of Natural Science
Biola University

L. McHargue

Dept. of Biology
Vanguard University

B. Cockerham

Dept. of Biology and Athletics
Fresno Pacific University

E. Karlow

Dept. of Physics
La Sierra University

J. Buchholz

Dept. of Physics
California Baptist University

Harry Cook

The King's University
College
Edmonton, AL T6B 2H3
Canada
hcook@oanet.com
780-489-8563

Paper

"A New Era in Christian University Cooperation: Formation of a Science Consortium"

Lester C. Eddington

Dept. of Biology and
Chemistry
Azusa Pacific University
901 East Alosta Avenue
Azusa, CA 91702
ledding@apu.edu
626-969-3434

Bioethics Symposium

“Evolution and the Golden Rule”

Rebecca J. Flietstra

Point Loma Nazarene
University
Dept. of Biology
3900 Lomaland Drive
San Diego, CA 92106
RebeccaFlietstra@
ptloma.edu
619-849-2718

Evolution and the Golden Rule

Our biological nature provides both the capacity and the absolute need for relationships. This need is counterbalanced by an equally powerful biological need for self-preservation and advantage. Modern evolutionary theory has emphasized this latter need, often suggesting that the only true human virtue is selfishness. Christian morality, in contrast, is rooted in sacrificial love. Such a basic incompatibility has suggested to many Christians that human moral behavior cannot have any basis in human biology but, instead, has been bestowed, in its entirety, directly (supernaturally) by God. Furthermore, within this understanding of morality, love and other positive attributes are commonly associated with the soul or the spiritual aspect of human beings, while selfishness and other negative traits are attributed to the physical body. Yet neither Christian theology nor modern biology requires us to draw these conclusions. Indeed, since Scripture consistently describes human beings in holistic terms, human anatomy and physiology is a central aspect of our being and cannot be considered irrelevant to our moral behavior. As Christians, then, we should not be surprised that new discoveries and discussions in neuroscience, psychology, and evolutionary biology suggest that both our current biology and our biological history may have shaped us as moral creatures.

Poster

“Pioneering Scientist Christians: Support from Science for Theology”

William Foulks

185 West Carriage
Chagrin Falls, OH 44022
kforty@alum.mit.edu
440-247-7713

**Pioneering Scientist Christians:
Support from Science for Theology**

In 1938 Dr. Arthur Compton, Nobel Laureate, visited his brother Karl, MIT’s president. The writer, William Foulks, then an MIT freshman, met Dr. Arthur Compton at Boston’s Westminster (Presbyterian) House, and asked, “Is there a God?” His answer was affirmative.

This inspired the writer (and later, physicist brother Edwin) to pioneer the finding, in science, support for theology. The writer is a scientist and a Christian, who has pioneered liquid polysulfide polymers, dosimeters for nuclear emanations, thermoluminescent materials, and infrared-transparent materials. Now, pioneering the supporting of theology by science, the writer has originated a concept showing that, from each human, there is a perpetual record of all its movements—movements of one human relative to another—propagating through the Universe. The writer’s concept, supported by science, shows that, up to hundreds per second, Doppler-effect-modified (otherwise, monoenergetic) neutrinos exit each human. These neutrinos have their energy (frequency) modified in characteristically unique amounts, as a consequence of the human’s movements and of potassium-40 movements within the human. The monoenergetic neutrinos are formed by the electron-capture decay of naturally-occurring potassium-40 in every human. The characteristically unique, Doppler-shifted energy of the neutrinos—and their trajectories—render them perpetually distinguishable from other-sources neutrinos (the ambient neutrinos lack the unique energies, trajectories).

Science believes neutrinos propagate perpetually, undeflected, and unstopped. Theists believe neutrino records of interhuman movements are examinable by our Universe Creator.

Genetic Engineering – Cloning

This *poster presentation* will explore the topic of cloning and its effect on the Christian world. Pastor Don Fox pastors High Desert Christian Fellowship in Hesperia, California and has earned his Masters degree in Pastoral Studies/Christian Education from Azusa Pacific University. He is a member of Pi Lambda Theta Honors Society and has been in the pastoral ministry for the past 28 years.

The movie “The Boys from Brazil” was used to try to recreate Hitler. In “Jurassic Park,” the movie was employed to bring back to life an entire prehistoric era. Today, the theme of movies and science fiction becomes reality. A sheep named Dolly was born that should have been an exact physical replica of a previously existing adult sheep. She is the result of a “virgin” birth, a miracle of technology.

Because the technology that produced Dolly theoretically could be applied to humans, the response from the public is immediate. This paper is based on two developing issues that will turn the tide of our humanity, as we now know it and that of future generations. Two events that have taken place create the setting for this paper. The characters introduced for the discussion of ethics and its ramifications thereto are Dolly, a cloned sheep, and a no-named frog that was genetically born without a head.

Dolly was created from cells taken from the udder of a 6-year-old Finn Dorset ewe. A few of the cells were fused with unfertilized eggs that had the nucleus removed. The process of fusing is called Nuclear Transfer. The process is done by micromanipulation of the chromosomes from the eggs of the donor embryo.

Any differences in characteristics between offspring and the mother or each other would be from the mother ewe’s genetic mapping (given to her by her mother and father’s genetic makeup).

William H. Sheldon, Somatotypy, and Promethean Religion

In 1934 American psychologist William H. Sheldon MD/PhD (1898–1977) was commissioned by the National Council on Religion in Higher Education “to go forth [to Europe] and study the problem of the relation of psychology and of medicine to religion.” For Sheldon, the author of “somatotypy,” the scaled system for measuring and classifying the human body, religion was always inseparable from his scientific research. Not religion of the orthodox variety, but of the strain cultivated during the 1930s by Dr. Harry Emerson Fosdick, who declared to Sheldon upon his departure for Dartington Hall in Devon, England: “I think that religion boils down in the end to reverence for the divine possibility in human nature.” This paper will detail how Sheldon’s fascinating and entirely neglected religious interests were inseparable from his considerable studies in human physique. It is based on archival research done at Dartington Hall, and especially on Sheldon’s unpublished manuscript in the Dartington archives entitled, “The Idea of a Promethean Religion.” Sheldon struggled throughout the late 1930s to interest various American universities,

Poster

“Genetic Engineering–Cloning”

Donald W. Fox

15252 Seneca Rd. #339
Victorville, CA 92392

Paper

“William H. Sheldon, Somatotypy, and Promethean Religion”

Stephen H. Gatlin

Eastern University
1300 Eagle Road
St. Davids, PA 19087
sgatlin@eastern.edu
610-341-4383

Plenary Speaker

**“Forbidden Games:
The Religious
Reaction to the
Copernican Theory”**

Owen Gingerich

Research Professor of
Astronomy and History
of Science
Harvard-Smithsonian
Center for Astrophysics
60 Garden Street
Cambridge, MA 02138
ginger@cfa.harvard.edu

including Harvard, Yale, and the University of Chicago, in his scheme, but to little practical avail. This paper argues that Sheldon’s interdisciplinary (religious) passions probably detracted from his scientific pursuits, even as these passions are of immense historical and cultural interest in themselves.

**Forbidden Games: The Religious Reaction to the
Copernican Theory**

“I won’t have it! I won’t be a nobody on an inconsequential star briefly twirling hither and thither!” exclaims Brecht’s old cardinal in his highly mythologized version of the Galileo affair. But the real religious response to heliocentrism included an attempt by the Catholic church to censor Copernicus’ book, to make it appear hypothetical and not a description of physical reality. This illustrated lecture will examine the various religious responses to the radical new cosmology, including the use of proof texts by both the Catholics and Protestants. This rich historical example will furnish the ground for a brief analysis of the roles of proof and persuasion in the formulation of scientific understanding. The lecture will be based on a chapter in a forthcoming book tentatively entitled *The Book Nobody Read*.

Paper

**“Eternity,
Temporality and
Quantum Gravity”**

Bruce L. Gordon

The Program in Science,
Philosophy and Religion
PO Box 97130
Baylor University
Waco, TX 76798-7130
Bruce_Gordon@
baylor.edu
254-710-4175

Eternity, Temporality and Quantum Gravity

This paper examines the metaphysical and theological implications of ongoing attempts to construct a quantum theory of gravity. In particular, it focuses on what quantum gravitational research programs have to say about our understanding of God’s relationship to creation and the nature of time. Quantum gravity seeks to reconcile quantum theory with general relativity, but the latter theories treat time in fundamentally different ways. In quantum theory, time functions as a background parameter that marks the evolution of a system, whereas in general relativity there is no such thing as time simpliciter but rather a variety of different time variables. Attempts to bring these theories together coherently have generated two broad research strategies diametrically opposed to each other. In one approach, time and change are not fundamental and the challenge is to relate this viewpoint to our experience while generating workable strategies for quantizing gravity. The other approach eschews “gauge invariant” interpretations of general relativity and tries to preserve a fundamental role for time and change along with viable strategies for gravitational quantization. Both approaches have implications for the popular view that God transcends universal space-time in such a way that all events, even those in our future, are eternally present to him. As such, they have import for our conceptions of divine eternity and omniscience. They furthermore have profound relevance to the metaphysics of temporality, influencing answers to the questions of whether only the present is real (presentism) rather than all times and their contents being equally real (eternalism), and whether concrete individuals persist through time by existing as complete wholes at different times (endurantism) or instead are aggregates made up of different temporal parts (perdurantism). This paper maps the terrain of conceptual relationships and suggests preferred strategies for dealing with metaphysical conundrums subject to the constraints of orthodox theology.

Human Cloning: Scientific Developments and Ethical Considerations

In early 1997, Dr. Ian Wilmut, of the Roslin Institute in Scotland, announced the successful cloning of a sheep named “Dolly” by nuclear transfer from adult mammary gland cells. Now, five years later, this technology is being used to clone embryos from adult somatic cells in at least six different mammalian species, including humans. Several of the non-human mammalian species have been genetically modified, a process made much easier, in some respects, by the application of nuclear transfer technology. Embryonic stem cell lines have been isolated from cloned embryos in several of these species, encouraging attempts to isolate them from cloned human embryos, as well. With advancements in mammalian embryonic cloning have come a few privately funded research groups in this country and abroad that say they are attempting to develop human cloning technology, ultimately for commercial purposes. In some cases, their focus is on “reproductive cloning,” the creation of babies from cloned human embryos. In other cases, the focus is more on “therapeutic cloning,” the derivation of embryonic stem cell lines from embryo clones of patients for use in cell-based therapies to repair organs and cure diseases. While it is unlikely that these or other applications of human cloning technology will be successfully implemented in the near future, they raise profound ethical issues—issues that will be explored in some detail in this presentation.

Darwin’s God and Intelligent Design: Reconciling Evolution and Creation?

The Roundtable seeks to assess, and possibly advance, the current debate concerning Intelligent Design and its challenge to the naturalistic paradigm of Darwin’s evolutionary theory. It also addresses larger biblical and theological issues related to naturalism. First, Jeffrey Schloss (Westmont College) will present his paper, “A Plague on Both Your Houses” (see separate abstract for details). Then the roundtable participants will add their comments: Bruce L. Gordon (Baylor Univ.), Denis O. Lamoureux (Univ. of Alberta-Canada; see separate abstract for his paper), James B. Miller (AAAS), Del Ratzsch (Calvin College), Thaddeus J. Trenn (Univ. of Toronto-Canada), and the chair, Oskar Gruenwald (IIR).

Questions to be addressed include: Does ID lack scientific credentials and credibility? Is it really just a “warmed-up” creationist philosophy/theology that only claims to be scientific? Can the biblical account of creation be reconciled with Darwinian evolution? Why do critics of ID consider it a major challenge to science education? Can ID account for the great diversity of life better than Darwin’s naturalistic evolution? Can ID bridge the conceptual, epistemological, methodological, and ontological gap between the empirical methodology of the natural sciences, which presupposes testability of hypotheses, and ID’s concepts of information, complexity, and intelligent design, which imply intelligent agency? Does ID make sense as an alternative scientific paradigm? In sum, does ID alter the basic topography of science as hitherto understood?

Bioethics Symposium

“Human Cloning: Scientific Developments and Ethical Considerations”

Brian T. Greuel

Dept. of Biology
John Brown University
Box 3119
2000 W. University St.
Siloam Springs, AR 72761
bgreuel@jbu.edu
501-524-7433

Roundtable

“Darwin’s God and Intelligent Design: Reconciling Evolution and Creation?”

Oskar Gruenwald

1065 Pine Bluff Dr.
Pasadena, CA 91107
og@JIS3.org
626-351-0419

Poster

**“Granzyme B
Cleavage of
Grp94/Gp96,
Implications in the
Generation of
Altered Immune
Responses”**

Michelle Lynn Harris

Johns Hopkins
University School of
Medicine
720 Rutland Avenue
Ross Bldg., Room 1059
Baltimore, MD 21205
mharr1@jhmi.edu
410-614-4083

Granzyme B Cleavage of Grp94/Gp96, Implications in the Generation of Altered Immune Responses

When the immune system reacts against self tissues rather than foreign antigens, autoimmune diseases such as lupus and rheumatoid arthritis can develop. This breakdown of self tolerance could occur if self antigens are presented as novel structures or within novel contexts. For example, the antigen may be covalently modified, proteolytically cleaved, or may be presented in an inflammatory environment.¹

While apoptotic cell death leads to tolerance generation, other types of cell death may be immune stimulatory.² Work by this laboratory has shown that many autoantigens are cleaved by granzyme B (grB), a protease contained within the cytotoxic granules released by T cells and natural killer cells. We therefore hypothesize that when cells die by granule content mediated cell death, novel epitopes are revealed, allowing for the initiation and propagation of autoimmune responses.³

We have recently discovered that one ER resident heat shock proteins, grp94/gp96, but not its cytosolic homologue, hsp90, is efficiently cleaved by grB. This cleavage can be demonstrated by purified grB acting on purified grp94, as well as in cell lysates in the presence of grB, and in intact cells killed by cytotoxic granule contents. Since heat shock proteins aid in protein folding, may protect against cell death,⁴ may play a role in antigen processing and presentation,⁵ and have adjuvant effects,⁶ grp94 cleavage by grB may have important functional consequences on dying cells and immune responses.

¹J. A. Odin, et al., *The Journal of Clinical Investigation* 108 (2001): 223–32.

²R. M. Steinman, et al., *Journal of Experimental Medicine* 191 (2000): 411–16.

³L. Casciola-Rosen, et al., *Journal of Experimental Medicine* 190 (1999): 815–25.

⁴C. Garrido, et al., *Biochemical and Biophysical Research Communications* 286 (2001): 433–42.

⁵Z. Li, A. Menoret, P., Srivastava, *Current Opinion in Immunology* 14 (2002): 45–51.

⁶P. Srivastava, *Annual Review of Immunology* 20 (2002): 395–425.

Poster

**“Identifying
Suppressors of
Galpha Activation
Associated with
McCune-Albright
Syndrome
Mutations”**

Regina Herrera

6403 Radford Ave.
N. Hollywood, CA 91606
regi_37@yahoo.com

Identifying Suppressors of Galpha Activation Associated with McCune-Albright Syndrome Mutations

The overall goal of this project is to identify genetic mutations that will reverse the defects found in patients with McCuneAlbright syndrome (MAS) in order to aid in the development of more effective treatments of the disease.

G-proteins, communication proteins that change the physiology of a cell by transferring signals from the cell's surface to intracellular enzymes, are very important in the understanding of the effects of MAS. There is a mutation in a G-protein gene of the MAS patients that causes an uncontrollably active G-protein signal instead of one that responds to specific stimuli. By identifying silent mutations (mutations that do not alter the primary amino acid sequence) at other sites in the gene that, in essence, “turn off” the continual signal, the defect may be corrected. This will be tested using a yeast experimental system where the continual signal from the G-protein causes cell arrest. Only when the randomly selected silent mutation is able to “turn off” the signal will the yeast colonies be allowed to grow. Once this has been accomplished, the DNA will

be recovered, and the new DNA sequence for the mutated G-protein gene will be determined.

Co-authors:

Janneal Lopez

Azusa Pacific University

Jennifer Perry

Azusa Pacific University

Britney Swen

Azusa Pacific University

Science: Christian and Natural

My conversion as an undergraduate was founded on a conviction that the Christian faith made intellectual sense of the world, of history, and of personal experience. For me, despite the expectation of my secular friends, there was no inherent contradiction between a thorough Christian commitment and the pursuit of Natural Science. That harmony of thought is something I have sought and treasured through my professional life and in my service of God, though it has not always easily been maintained.

In large measure, my early convictions have been borne out, not just because I have found that God's truth and scientific truth are compatible, but because it is hardly an overstatement to say that science is a Christian pursuit. The giants of science have over history been predominantly people of faith. The philosophical roots of science sink deep into the fertile soil of the Christian world view. And many essential traits of the personal practice of science—truthfulness, objectivity, openness, and thoughtfulness—are echoes of spiritual values.

My research field, fusion plasma physics, has attracted many Christian scientists; probably because it combines the highest of intellectual challenges with the opportunity to develop a technology of great human benefit. Exercising scientific leadership within this big-science environment brings personal and moral challenges as well as technical and intellectual ones. Jesus' lordship needs ever to be our guiding principle. Our public discourse will rarely make that explicit, but many around us will sense, however dimly, our distinctive vocation. And some will seek its source.

Life Science—2002

One hundred percent of the persons reading this statement are alive. That is a scientific fact. It shows that life is real and observable. That is the basis of the new LIFE SCIENCE—2002.

Current natural science purports to deal with the *physical* world. It has excluded life, because life per se is (correctly) considered a *noumenon*, something that is “apprehended by thought ... independent of perception by the senses.”¹ Nevertheless, when life is intimately associated with matter, the union is a living thing, a phenomenon, observable by the senses.

Time and distance per se are also noumena (concepts), and they become phenomena when they are associated with matter. We tend to forget this because they are inert. Life is *not* inert, but a *spirit*. It has a mind of its own

Plenary Speaker

“Science: Christian and Natural”

Ian Hutchinson

Director of the Alcator
C-Mod Fusion Project
Professor of Nuclear
Engineering
Massachusetts Institute of
Technology
Cambridge, MA

Poster

“Life Science—2002”

Charles Kennedy, Sr.

2108 German Street
Erie, PA 16503

and can influence matter. It is a *fourth* dimension, necessary for distinguishing living things from dead ones.

A basic postulate of our new life-science is: *Matter behaves differently in the presence of life*. This has been known for ages, but it is remarkably born out in quantum mechanics. Apparently, some quantum phenomena “know” the difference between a live human observer and a machine!²

God’s purpose, “let us make man in our own image” is unfolding right before our eyes. We see it in recapitulation. “*The earth shall be filled with the knowledge (science) of the glory of God ...*”³ This is happening and we can participate in it!

¹Merriam Webster’s Collegiate Dictionary, Tenth Edition.

²Peter Zoeller-Greer, “Genesis, Quantum Physics and Reality,” *Perspectives on Science and Christian Faith* 52 (March 2000): 16.

³Habakuk 2:14.

Stewardship, Education, and Aesthetics: Transforming a Campus Area

Paper

**“Stewardship,
Education, and
Aesthetics:
Transforming a
Campus Area”**

Scott S. Kinnes

Dept. of Biology and
Chemistry
Azusa Pacific University
901 East Alosta Avenue
Azusa, CA 91702
skinnnes@apu.edu
626-969-3434

Jon Milbon

Dept. of Biology
Azusa Pacific University
901 East Alosta Avenue
Azusa, CA 91702

Built in 1975, the Wynn Science Center sits on the main campus of Azusa Pacific University. For reasons lost in time, the rear of the building sits in a manmade bowl. For many years, the area behind the building was composed of a lawn bounded by a dirt hill, several patches of ivy, and either dirt or concrete areas. In the early ‘90s, our groundskeepers began replacing most of the ornamental, water-loving vegetation with vegetation native to Southern California. As part of this process, designs were created for improving the appearance of the areas surrounding the bowl. A chance encounter between one of the authors and the head groundskeeper provided a unique opportunity for a collaborative effort between an academic area and a support area. This effort involved many aspects of the design, planning, and financing of the project. The results are an area transformed into an oasis of natural beauty that has become a magnet for student, staff, and faculty activities. Several ponds, a hillside path, a creek, and numerous areas for sitting and relaxing now draw a constant stream of visitors, human and otherwise. Numerous science classes also make use of the various mini-ecosystems that have been created by performing analyses of the pond and stream water, conducting plant identification labs, and a variety of other ecologically related activities. An area that was once neglected has been transformed into a campus highlight following a plan that is easily transferred to other campuses to serve as a model of stewardship.

The Search for Astrophysical Neutrino Sources with AMANDA

Paper

**“The Search for
Astrophysical
Neutrino Sources
with AMANDA”**

Kyler W. Kuehn

With the discovery of a neutrino signal coincident with supernova 1987A, a new field of astronomy was born. With neutrinos serving as astrophysical messengers, new windows of observation were opened, providing several avenues for new discovery. Unfortunately, the very properties of neutrinos that make them important new messengers also make them extremely difficult to

detect, requiring large detector volumes to observe even a minuscule flux. From its vantage point within the South Polar ice cap, the Antarctic Muon and Neutrino Detector Array (AMANDA) has been involved in the search for neutrinos from astrophysical sources since the mid-1990s. Having recently proven its ability to detect neutrinos produced by cosmic-ray interactions in the atmosphere, and having provided a limit on the diffuse neutrino flux from astrophysical sources [*Nature*, March 22, 2001], AMANDA is now continuing its search for various specific neutrino sources, such as Active Galactic Nuclei, topological defects in the early universe, and Gamma-Ray Bursts (GRBs). The principles that make AMANDA an effective neutrino detector will be outlined, and an ongoing GRB search utilizing several years of data will be described in detail, including determination of the effective detector area and expected flux limits for neutrinos of energies between $\sim 10^{11}$ eV and 10^{20} eV. AMANDA's current and long-term detection limits will also be compared to various theoretical models of GRB production. The future discovery potential of AMANDA will be discussed, focusing on its proposed upgrade to a cubic-kilometer-scale detector, known as IceCube.

Charles Darwin & Intelligent Design

Popular belief has led many to assume that Charles Darwin rejected outright the notion of intelligent design. Consequently, the term "Darwinism" has evolved and come to be associated with a dysteleological interpretation of evolution.

A review of the primary historical literature reveals that Darwin's understanding of intelligent design was first cast within the categories of William Paley's natural theology, featuring a static universe, perfect adaptability, and beneficence. Once the law of natural selection and the dynamic process of biological evolution were discovered, he concluded that the "old argument of design in nature" as defended by Paley "fails." However, Darwin was never able to disregard the experience of nature's revelatory activity. Despite rejecting Christianity, wrestling with theodicy and being enamored with a positivistic epistemology, an implicit non-Paleyan view of intelligent design remained a part of his thinking. As Darwin confessed in the last year of his life in 1882, the belief that "wonderful contrivances" in nature reflect the "expression of mind" encountered him at times with "overwhelming force."

The historical record of Darwin's experience of intelligent design in nature is consistent with the biblical record, in particular Psalm 19:1–4. Regrettably, the term "Darwinism" is conflated with a dysteleological metaphysic, and it is entrenched in the popular mind, betraying the beliefs of Charles Darwin.

Charles A. Coulson on Science and Religion

Charles A. Coulson, FRS, (1910–1974) was an influential English-Methodist quantum chemist and author of a number of books on science and religion. Coulson's life, I will argue, displayed a unity of belief and action, and this unity was displayed in a variety of ways. First, Coulson's emphasis on a

Kyler W. Kuehn
Dept. of Physics and
Astronomy
4135 Frederick Reines
Hall
Irvine, CA 92697
kuehn@uci.edu
949-854-2267

Roundtable

"Charles Darwin & Intelligent Design"

Denis O. Lamoureux
St. Joseph's College
University of Alberta
Edmonton, AB T6G 2J5
Canada
dlamoure@ualberta.ca
780-492-7681

Paper

"Charles A. Coulson on Science and Religion"

Arie Leegwater

Arie Leegwater

Calvin College
3201 Burton SE
Grand Rapids, MI 49546
leeg@calvin.edu
616-957-6373

Paper

***“The Apocalypse:
Contact Point of
Geography and
Theology”***

Gordon Lewthwaite

18908 Liggett St.
Northridge, CA 91324
glewthwaite@
earthlink.net
818-349-5308

Paper

***“Selection and
Analysis of SV40 T
ag Epitope I Escape
Variants”***

**Chelsea Elizabeth
Matsko**

Box 5782
Messiah College
Grantham, PA 17027
chels580@yahoo.com
717-796-4737

personal religious experience, the role of a group’s fellowship in confirming that experience, and a call to holiness affected his approach to his scientific co-workers, his research group and their activities, and his general promotion of science to a wider public. Second, Coulson’s style of attacking scientific problems in quantum chemistry, his view of the role of mathematical models and imagination in scientific work, and his emphasis on the wholeness or unity of personal experience shaped his views of the science/religion connection. What can or should we learn from this Christian pioneer in quantum chemistry?

**The Apocalypse:
Contact Point of Geography and Theology**

Amidst the multiplicity of “End-time” scenarios postulated as derived from the book of Revelation, it might be prudent that its grounding in the ancient geography of Asia Minor be held in view. At least from the time of William Ramsay’s exegesis (1904), it was noted that “The Seven Churches” aligned along an ancient postal route, initiated its sequence, and local color from city and region influenced each message. And if literal earthquakes and thermal activity were involved, due note might also be taken of the unfortunate impact of “literalistic” understanding on “Christian” approaches to world geography and ecology—and indeed to “Science” in general—biblical symbols call for thoughtful exegesis.

**Selection and Analysis of SV40 T ag Epitope I Escape
Variants**

The Simian Virus 40 (SV40) Large Tumor Antigen (T ag) contains four distinct epitopes, I II/III, IV, and V, that are each recognized by one or more H-2b-restricted cytotoxic T lymphocyte clones (CTL). The SV40 T ag induces cellular immortalization and tumor formation. We are interested in the role of individual epitopes in the immunotherapy of SV40 induced tumors. One way that T antigen positive cells may avoid lysis by CTL predominantly directed against a single epitope is through alteration of the target epitope sequence by amino acid substitution or deletion. A previous study identified a limited set of single amino acid substitutions within T ag epitopes II/III, IV, or V in escape variant populations obtained by *in vitro* CTL clone selections. Only deletions which remove the epitope I sequence were found in variants resistant to the epitope I specific CTL clone Y-1. The goal of our research is to establish and analyze additional escape variants by selection with multiple epitope I specific CTL clones which express distinct T cell antigen receptors (Y-1 and K-11). Variant epitope sequences were identified by sequencing of recombinant plasmids obtained by subcloning epitope region sequences which were amplified from Y-1 and K-11-resistant variant populations by PCR. The preliminary results revealed primarily wild type epitope sequences. The implications of these results will be discussed.

Co-authors:

Dr. Lawrence Mylin
Caroline Kasuma

David Assis
Chelsea Matsko

Christian Boyer
Jeff Siglin

Adam and Human Knowledge

The Bible presents Adam as a farmer living in Mesopotamia. Anthropology then places Adam some time after 10,000 BC, living contemporaneously with other *Homo sapiens*. These prehistoric *Homo sapiens* were intelligent animals having learned, over some hundreds of thousands of years, to manipulate their environment through the use of numbers and the principles of physics. On the other hand, the personal lives of these *Homo sapiens* were filled with the selfishness and cruelty required for survival in their evolutionary past. Yet, there was no sin in these lives since no law was being broken for “sin is not taken into account when there is no law” (Rom 5:13). But then Adam disobeyed God, ate of the tree of the knowledge of good and evil, thereby putting the law of good and evil on his heart. Adam now became a slave to sin since his evolutionary instincts led to his disobedience of God’s law written on his heart. And, through Adam’s disobedience, all humans were made to be sinners (Rom 5:19). All humans became slaves to sin. The twentieth century has illustrated this dual feature of humankind’s nature. On the one hand, as slaves to sin, humans mistreated other humans on an unprecedented scale. On the other hand, through the inheritance of their evolutionary experience, humans advanced science and technology as never before. The evidence of the twentieth century, therefore, confirms the biblical account of Adam sinning among prehistoric men.

Paper

“Adam and Human Knowledge”

John A. McIntyre

2316 Bristol St.
Bryan, TX 77802
jmcintyre@physics.
tamu.edu
979-822-4398

James Clerk Maxwell and the Victoria Institute

In nineteenth-century Great Britain, scientific theories that declared the earth was millions of years old and the readiness of some prominent clergy to accommodate these ideas caused distress among conservative Christians who often saw these trends as instrumental in promoting the rising skepticism in their nation. One reaction was the formation of the Victoria Institute in 1865–1867. Foremost among its objectives was “to investigate fully and impartially the most important questions of philosophy and science, but more especially those that bear upon the great truths revealed in Holy Scripture, with the view of defending these truths against the oppositions of science, falsely so called.” Among the scientists of the era were many committed Christians. One, James Clerk Maxwell, apparently received a number of invitations to join the Victoria Institute the last of which was in the form of a letter in 1875. Maxwell turned down the invitation, giving a few of his reasons in a rough draft characteristically penned on the back of the invitation letter. Maxwell specifically declared “that the results which each man arrives at in his attempts to harmonize his science with his Christianity ought not to be regarded as having any significance except to the man himself ...” This paper will explore the influences in Maxwell’s life that combined to lead him to spurn the Victoria Institute.

Paper

“James Clerk Maxwell and the Victoria Institute”

Jerrold L. McNatt

Physics Dept.
Gordon College
Wenham, MA 01984
mcnatt@gordon.edu
978-927-2300

Earl Douglass – Dinosaur Hunter

In 1909 Earl Douglass discovered a dinosaur skeleton at the location that became Dinosaur National Monument. He excavated that skeleton and many others for the Carnegie Museum, spending summers excavating in Utah, and

Paper

“Earl Douglass – Dinosaur Hunter”

Clarence Menninga

Clarence Menninga

Dept. of Geology,
Geography,
Environmental Studies
Calvin College
3201 Burton SE
Grand Rapids, MI 49546
menn@calvin.edu
616-957-7093

winters in Pittsburgh, preparing specimens for display. Ending his relationship with Carnegie in 1924, he spent two years collecting dinosaurs for the University of Utah, and then left the paleontology work to pursue other interests. Raised in a Christian home in Minnesota, Douglass became a teacher, and then a naturalist, traveling west to study and collect plants and other organisms. He became one of the most productive of the dinosaur hunters. He published only a few articles in popular and scientific journals, while others published articles based on his collections. Consequently, his contributions to Carnegie Museum and the University of Utah went largely under-appreciated and unsung for many years. After becoming involved in nature studies and fossil excavations, Douglass had differences with the Seventh Day Adventist Church in which he had grown up, particularly concerning the ages of rocks and the developmental history of living organisms. Eventually he felt obliged to resign his membership in the Church. While he never found a home in another church fellowship, his writings indicate that he maintained his Christian faith for his entire life. Douglass' writings include diaries, field notes, correspondence, essays, poems, and miscellaneous journal entries. The collection is housed at the Marriott Library of the University of Utah, occupying sixteen feet of shelf space.

Paper

"Is There an Ethical Conclusion to the Distinction between Prophetic and Scientific Truth?"

**Danielle Mihram and
G. Arthur Mihram**

University of Southern
California
LVL: 301-B
Los Angeles, CA 90089
dmihram@usc.edu
213-740-3783

Is There an Ethical Conclusion to the Distinction between Prophetic and Scientific Truth?

We review recent results regarding ethics in the scientific literature, focusing on the two definitions of truth in the religious literature: In the Old testament, "truth" has a connotation for statements which are in accordance with Yahweh's will as made known in the Torah; whereas in the New testament, "truth" assumes the Greek denotation: "the actual state of affairs." We are prompted to enquire whether there is truth regarding the definition of "truth" and do so by examining in detail what is the Scientific Method, noting its foundation, as that human activity devoted to the very explanation for a naturally occurring phenomenon, on truth-seeking. We then note that, if the Scientific Method itself has been shown to be an incredibly and surprisingly isomorphic mimicry of Nature's processes for ensuring survival, then do not Christians and scientists have an ethical obligation to ensure that each scientist conduct himself/herself properly? We review also a link between our individual neural model-building and our collectively human-conducted model-building process, conducted first by myth, then by metaphor, then by models.

Paper

"Pedagogical Strategies to Integrate Science and Christian Faith"

Roman J. Miller

Pedagogical Strategies to Integrate Science and Christian Faith

Can Christian college faculty members transform a secular pedagogy to one that integrates Christian faith through curriculum, example, values, and testimony? Using illustrations from biology and general education courses, this presentation describes how a biology professor in a church related university uses the following five-point pedagogy to lead students in the process of faith integration.

1. Personal narrative. While the validity of a conversion story as personal narrative is self-evident, the Christian professor meaningfully contemporizes by sharing post-conversional experiences that illustrate transforming works of grace.
2. Impact of issues. Discussion of controversial issues such as evolution or stem cell research in a sensitive and respectful manner, provides windows on the diversity of Christian faith and minimizes polemicism.
3. Praxis of ethics. Sharing foundational principles of a Christian ethical system, which may contrast markedly with the principles espoused in secular culture, preludes a meaningful discussion of ethical issues such as *in vitro* fertilization and genetically modified food.
4. Historical examples. Resources describe classic historical examples, such as the conflict between Galileo and the Roman Catholic Church over competing cosmologies, as well as illustrations from devout scientists, such as Isaac Newton or George Washington Carver whose personal piety and faith influenced their scientific activities.
5. World view. A respectful but critical analysis of religious and secular world view variations, e.g. Feminism, Islamism, New Ageism, Catholicism, Fundamentalism, or Anabaptism, fosters development of a mature but personal world view.

Development of a Fly Model of Fragile X Syndrome

Fragile X Syndrome, the most common form of inherited mental retardation, is caused by the loss of the FMR1 gene. The expansion of a CGG repeat in the 5' UTR of the gene is the most frequent mutation. The protein encoded by the gene, FMRP, is a ubiquitously expressed RNA binding protein thought to be involved in learning and memory. Though mouse models have been analyzed, much of the biology of FMRP has yet to be elucidated. Recently, the completion of the *Drosophila* Genome Project allowed the identification of *dfxr*, the fly homologue of FMR1. Sequence analysis has revealed an overall similarity of 30% and up to 65% in the functional domains. Similar to its vertebrate counterpart, *dfxr* is an RNA binding protein that displays a ubiquitous pattern of expression. In order to use *Drosophila* as a model, the consequence of the loss of *dfxr* was analyzed. Considering the symptoms displayed by patients, several neuronal populations of the fly brain were studied. Strong axon guidance, extension and branching defects were noted in the mutants suggesting that similar to FMR1, *dfxr* may play a synaptic role. Additionally, circadian rhythm abnormalities were observed in these flies, thus explaining some of the sleeping disorders displayed by affected children. In conclusion, a fly model of Fragile X Syndrome has been developed and it is expected that, by taking advantage of fly genetics, the pathogenesis of the disease might be elucidated.

Pascal and Chiasmic Cosmology

Blaise Pascal, one of the great mathematicians and physical scientists of the seventeenth century, was also a profound Christian writer who was involved in

Roman J. Miller

4956 Singers Glen Road
Harrisonburg, VA 22802
millerrj@rica.net
540-867-0854

Poster

"Development of a Fly Model of Fragile X Syndrome"

**Joanella Morales,
B. Hassan and
D. L. Nelson**

Department of Molecular
and Human Genetics
Baylor College of
Medicine
8450 Cambridge #3149
Houston, TX 77054
jm037047@bcm.tmc.edu

Paper

"Pascal and Chiasmic Cosmology"

George L. Murphy

George L. Murphy
538 Cynthia Lane
Tallmadge, OH 44278
gmurphy@raex.com
330-633-4376

both scientific and theological controversies. He did not deal in detail with the relationships between the Christian faith and the natural sciences, but the fact that a new scientific picture of the world was emerging at the time when he was preparing the arguments for Christianity in his *Pensees* is significant. A number of his "thoughts" are especially relevant for the approach to science-theology dialogue that has been called "chiasmic cosmology," which tries to discern the presence and activity of the crucified God in the universe. This presentation will sketch some relevant events of Pascal's life and important aspects of his scientific work and theology. We will then discuss concepts of his which are of particular interest for the project of chiasmic cosmology. Some of the themes to be considered will be the influence of the developing scientific world view of the seventeenth century on Pascal's apologetic, his attitude toward natural theology and what he called "the God of the philosophers," the importance of the Passion of Christ and of christology in general in his thought, his emphasis on miracles, and Pascal's famous "wager."

Poster

**"Medicine,
Economics, and
Ethics"**

Bryan D. Nevins
617 Arcadia Ter. #301
Sunnyvale, CA 94085
bknevins@pacbell.net
408-773-1471

Medicine, Economics, and Ethics

The US has the world's most expensive medical care. Yet, our life expectancy is shorter than Costa Rica. Rapid changes in demographics and technology have made our medical practice inefficient and contentious. Many people emphasize personalized, high tech medical care, when the real increases in life span are the result of nutrition, sanitation, and preventive medicine. Our health care policies diverge from reality. During the 1960s, doctors and hospitals charged "deep pockets" patients high rates. These high rates subsidized education, research, and care for the poor. Corporations faced high medical costs through their employee's insurance benefits. Costs rose faster than inflation for many reasons. During the 1980s corporations lowered costs by using HMOs. However, during the 1990s, HMOs were unable to control rising costs. A Christian wants to know: What does Christian mercy imply for the distribution of resources in the US and worldwide? Does a Christian notion of mortality have any implications for medicine? To address the problems, we must: achieve a culture of realism about medicine's abilities and costs, create more choice in health care methods, motivate patients and hospitals to use health resources prudently, motivate insurers and hospitals to give quality care, and emphasize preventive maintenance instead of road side assistance.

Paper

**"Wrestling with
Wittgenstein:
Does 1+1=2?"**

David S. Oakley
180 S. Garrison St.
Lakewood, CO 80226
doakley@ccu.edu
303-963-3114

Wrestling with Wittgenstein: Does 1+1=2?

This particular physics-religion dialogue begins by examining a common assumption: "There exists a set of logical and mathematical laws that are part of objective reality and independent of human knowledge." Such a set includes the laws of Non-Contradiction, Excluded Middle, Identity, and the resulting mathematical ideas such as $1+1=2$. Given these laws, however, certain experiments in quantum-mechanics cannot be understood. One classroom-style demonstration of this will be presented here, using microwaves and wax. While efforts have been made to modify the above laws, there has been little success in connecting quantum physics to objective logic. Still, the scientific project of understanding the world hasn't suffered. New rules of explanation have been invented which have allowed for new predictions to be made.

Physics has continued to progress. It is here that we appeal to the Wittgensteinian idea of replacing the word “law,” suggesting objectivity, with the word “rule,” suggesting a game or context. Recasting in such a manner might provide a better understanding of the scientific method and the historical role of religion in science. It might also lead to a more productive contemporary faith-science dialogue. “Might” is the operative word here, hence the title.

A Strand of Three Is Not Easily Broken: Collagen—A Designer Protein

Collagen is the fabric of our being. As the most abundant protein in our bodies, it provides structure to our skin and tendons, and strength to our bones. Unique among proteins, it has a triple-stranded helix. This provides resistance to degradation and allows the protein to form fibers. Analogous to steel cable supporting bridges; the collagen molecules are woven into tight, strong fibers. There are now over twenty types of collagen identified in the body. Skin is primarily Type I & III collagen. The marvels of this protein are relatively unknown to the general population. This presentation will provide a brief overview of the unique properties of collagen. Collagen is the product of at least two genes. The biosynthetic pathway combines the gene products leading to the formation of a triple-helical protein and finally to collagen fibers. As a designer protein, a defect in collagen genes can result in disease. A number of diseases have been attributed to defects in collagen. For centuries, collagen has been used for medicinal purposes including sutures, biomaterials, and implants. My research involves developing human collagen from dermal fibroblasts for use in dermal replacement, drug delivery, and biomaterials. The process for developing protein products from cell culture will be briefly described.

My Genes Made Me Do It! Creation, Genetics, and Responsibility

The saying used to be common that “the Devil made me do it.” These days the cry is more often “my genes made me do it,” and since God gave me my genes, that is what I should do. Genes do influence our behavior, yet we can choose to encourage, channel, or resist particular tendencies. That is important in that some inclinations are helpful to follow and others are not. There seems to be a strong natural drive in many people to have and care for their children. Such is a demanding and worthy task. On the other hand, while God created the physical world and declared it good, we also have a fallen nature. Some early church fathers such as Irenaeus also argue that God’s good creation is not complete. It can and should become better. Discernment of what is worthwhile, right, and good requires more than the presence of personal drive or desire. Awareness of the varying influence, yet not destiny, of human genetic drives should lead to compassion for those who struggle where we do not and warn us about personal pride in some situations we may find relatively easy. Genetics reminds us that everyone starts with a different set of givens. “To whom much has been given, much shall be required.” God knows where we start, offers power to grow, and holds us responsible for what we do with what we have.

Paper

“A Strand of Three Is Not Easily Broken: Collagen—A Designer Protein”

Kenneth C. Olson

420 Bodega Street
Foster City, CA 94404
kolson@mcghan.com
510-623-2411

Paper

“My Genes Made Me Do It! Creation, Genetics, and Responsibility”

James C. Peterson

3521 Aegean Way
Monroe, NC 28110
peterson@wingate.edu
704-233-8071

Paper

***“Reconciling
Relativity with
Tensed Time”***

J. Brian Pitts

Box 780
St. Edward's University
Austin, TX 78704-6489
brianp@admin.
stewards.edu
512-464-8893

Reconciling Relativity with Tensed Time

Tension exists between the objectivity time's flow and the block universe view suggested by relativistic physics. In addition to support from common sense, objectively flowing time is supported by the existence of apparently irreducibly tensed facts, such as what time it is now, which one must know to act in a timely way. Yet the relativity of simultaneity to one's state of motion in special relativity physics strips the now of the objectivity required by the flow of time. It seems natural that the most important aspect of time would not be conspirationally hidden from physics by shrinking rods and slowing clocks, so objectively flowing time is embarrassed by the success of modern physics. Often belief in objective time flow of time leads to a search for violations of relativity and for “physical mechanism” for relativistic effects, projects which have not been very fruitful to date. In contrast, we aim to reconcile exact relativistic Lorentz symmetry with objectively flowing time. The physical unobservability of the objective now we regard as a problem of evil. But a greater-good defense can be proposed: rather than regarding the unobservability of objective simultaneity as evidence of divine mischief, as some have worried, we suggest that the Maker made physics relativistic as an act of benevolence to physics, for relativistic symmetry so restricts the possible theories that it answers a host of questions that would otherwise require laborious experimentation to settle. We discuss whether God might want to do physicists such a favor.

Poster

***“The Three Domains
of Life: A Challenge
to the Concept of the
Universal Cellular
Ancestor?”***

Pattle P. Pun

Department of Biology
Wheaton College
Wheaton, IL 60187
pattle.p.pun@
wheaton.edu
630-752-5303

The Three Domains of Life: A Challenge to the Concept of the Universal Cellular Ancestor?

With the discovery of the uniqueness of Archaeobacteria in rRNA sequence and by comparative studies with well-characterized molecular systems, cell walls, lipid compositions and features of the transcriptional, and translational machineries, the three domains of life—namely Archaea, Bacteria and Eukarya—have become the currently accepted paradigm in the field of molecular taxonomy. Sequence analyses based on functional proteins across the three domains also suggest each of the three domains as independent monophyletic lineage representing ribosomal, metabolic, biosynthetic proteins as well as the replicational, transcriptional, and translational machineries. Current view suggests that the universal tree of life branched from the universal ancestor in separate lineages leading to Bacteria and Archaea, the latter then diverged into Eukarya. The search for the universal ancestor has led to postulating a universal communal gene pool (progenotes) in which lateral or horizontal gene transfer (HGT) played the most important role in diversification since the three domains of life are resistant to HGT after they have crystallized into cellular communities. This scenario challenges the concept of the Universal Cellular Ancestor and may be open to alternative views based on design.

Characterization of the Protein Content of Rafts (Detergent Insoluble Glycosphingolipid Enriched Membrane Domains) from Rat Sertoli Cell Cultures

Rafts are small microdomains found in plasma membranes. They form via aggregation of selective lipids such as glycosphingolipids and cholesterol based on their greater hydrophobicity relative to the bulk of membrane lipids. These rafts, in the presence of the protein caveolin, form flask-shaped invaginations known as caveolae; in the absence of caveolin, flat rafts or other vesicular structures form. Both caveolar and non-caveolar rafts function as organizing scaffolds for a variety of cell signaling pathways. Rafts may be isolated based on their insolubility in 1% Triton X-100 at 4°C and their low density on sucrose density gradients. These isolated membrane fractions are here referred to as DIG fractions. Our laboratory has reported the isolation of DIG fractions, non-caveolar rafts from cultured Sertoli cells, the somatic epithelial cell of the rat seminiferous tubule, and begun their characterization. These rafts are localized at the apical surface of the Sertoli cell *in vitro*; *in vivo* they face the adluminal compartment and the meiotic and post-meiotic spermatogenic cells, a location with extensive Sertoli-spermatogenic cell signaling occurs. Initial studies suggest a concentration of cell signaling molecules such as Ras as well as the GPI-anchored protein ceruloplasm. The goal of the study reported here is to identify the proteins found in these DIG fractions. Initial attempts to obtain N-terminal sequences using 1-dimensional SDS-PAGE were, with a few exceptions, unsuccessful. Thus we initiated this study using 2-dimensional acrylamide gels. The results of this analysis will be reported for DIG fractions isolated under several different conditions.

Poster

“Characterization of the Protein Content of Rafts (Detergent Insoluble Glycosphingolipid Enriched Membrane Domains) from Rat Sertoli Cell Cultures”

Lloyd Vaughn Reitz Jr.
RD#2 Box 481
Shamokin, PA 17872
lreizt@bucknell.edu
570-648-8001

Natural Selection is Out, Molecular Drive is In

The explanatory power of natural selection has been doubted since Darwin's day, and now molecular biologist Gabriel Dover has introduced another force in evolution called molecular drive in the book *Dear Mr. Darwin* (2000). Dover claims that organisms are “a product as much of the internal flux of their genomes as of the external flux of the environment.” It all starts with the observation that repetitive DNA segments are homogenized within a species. Many pieces of DNA exist in multiple copies in the genome. For example, the code for ribosomal RNA (the RNA required for gene transcription) has 700 copies in humans. When multiple copies are examined between closely related species, it is discovered that a mutation in one copy will spread throughout all the repeats even on different chromosomes in all the members of a sexually reproducing population. The mechanisms for this spread are apparently unequal crossing-over, gene conversion, and slippage. Proteins and the regulatory regions of genes are modular, according to Dover, and hence are prone to modification by the same mechanisms. These regulatory regions, or “promoters,” reside adjacent to a gene and consist of modules which bind to the products of other genes, regulating the initiation, tempo, timing, and tissue specificity of the transcription process of the adjacent gene. What it all boils down to is that changes are occurring within the genome without the benefit of selection. In my presentation, I will take a close look at the mechanisms and implications of molecular drive.

Poster

“Natural Selection is Out, Molecular Drive is In”

Carl Resler
Section of Neurobiology
140 Patterson Lab
2400 Speedway
Austin, TX 78712
resler@mail.utexas.edu
512-346-4760

Paper

“Coping with Complexity: Questions Inspired by History”

Craig F. Rusbult
2132 Kendall Ave.
Madison, WI 53705-3916
craig@chem.wisc.edu
608-238-8700

Coping with Complexity: Questions Inspired by History

This paper was motivated by observations—modern medicine is not criticized for actions in the past (when physicians treated patients by removing blood and adding mercury) but modern Christianity is often criticized for historical actions (such as the trial of Galileo by the Catholic Church)—that have inspired questions. Why is there a difference between “what can be learned” from historical medicine and historical religion, with past-to-present transfer for Christians but not physicians? And when there is religion-related transfer, is it usually for beliefs or behavior, or both? To make sense of life’s complexity requires a way of thinking that is logical and flexible, analytical yet holistic. In their efforts to construct accurate descriptions (of what happened) and plausible explanations (for why it happened), how do historians cope with the multiplicity of diverse factors (theological, cultural-personal ...) that shape the ideas and actions of people in the past and present? How is history constructed and used by scholarly historians and non-historians, by popularizing historians and readers of history? Is there a historical method, analogous to scientific method? How can “if-and-if, then ...” logic be used to reach generalized conclusions based on historical data, and when/why/how should these inferences be challenged? Although the focus will be historiography, we’ll also look at some history: Galileo’s adventures and modern flood geology, flat-earth beliefs and Inherit the Wind.

Paper

“A Look at Faith Based Community Organizing from the Church Perspective”

Julia M. Scally
CPO 3023:
Wheaton College
Wheaton, IL 60187
Julia.M.Scally@
Wheaton.edu
630-853-3132

A Look at Faith Based Community Organizing from the Church Perspective

Religious institutions are the main form of civic engagement for large numbers of Americans, yet there has been little research on how churches actually become involved in larger civic issues in their communities. The purpose of the research I am doing with a faculty member here at Wheaton College is to explore how faith-based community organizing affects the church communities who choose to participate. Previously written literature has proposed that community organizing enhances the leadership, the ministry, and the growth of a church. Through interviewing ministers whose churches are participating in three of the major national organizing groups, we are comparing the existing literature with the evaluations provided from the church perspective. We are interviewing a representative sample of pastors involved in organizing in New Orleans, Milwaukee, and Chicago. Our sample size will range from 6–9 different churches from each of the three cities. As our research method is qualitative interviews, our questions cover four major objectives. First, we are looking for a general description of the church and its surrounding environment. Second, we are exploring how the church came to be involved with community organizing and why it chose to do so. Third, we are finding out what involvement level the church has with community organizing compared with other types of church ministry. Fourth, we are asking about the affects that community organizing has had on the church in the areas of leadership, ministry, and growth. In combining these objectives, our research will provide us not only with the affects of organizing on the churches but also background information on the churches in order to look for correlations for these observed affects.

A Plague on Both Your Houses: Moving Beyond the Impasse Over Design Science

The notion of intelligent agency or purposeful design has historically been used in two distinct though not unrelated ways in scientific theorizing: it may be asserted as a conclusion or best possible inference from empirical data via a revisionist methodology that is open to non-material causation, or it may be employed as a reservoir of hypotheses that may not be suggested by prevailing theory but are nevertheless empirically testable by traditional scientific methodology. The current intelligent design movement primarily pursues the former agenda. I argue that methodological criticisms of this approach are unpersuasive and frequently *ad hominem*, most factual criticisms are demonstrably errant, and epistemological criticisms reflect an antipathy to the causal efficacy of all mental agency in scientific materialism. However, I also argue that leading proponents of the design program have often overstated and oversimplified the merits of their case, have failed to consider the role of aesthetics, thematic creativity, and other affective qualities not amenable to engineering models of design, and have neither recognized the entrenchedness nor appreciated the value of ambiguity in creation. Most importantly, and contrary to its advocates' claims, design-as-inference does not yield fruitful scientific hypotheses, nor should it: for design to function predictively rather than as a terminus, would require a theology of creation, just as going beyond rejecting behaviorism requires cognitive science. Design as starting assumption begins at precisely this point, with an explicit theology of nature and by its very operation yields testable scientific hypotheses. Whether these hypotheses are fruitful, however, depends on their empirical tractability and the coherence of the theological reservoir from which they have been drawn.

Two case studies will be examined. First, I will examine the recent explosion of "evolutionary eschatologies," virtually all of which reflect explicit theological precommitments from a wide variety of spiritual traditions and substitute naturalistic progressivism for the prevailing notion of evolutionary disteleology. I argue that their notions are untenable, not because they controvert prevailing theory (which they do), but because they are not supported empirically. Second, I will assess revisionist theories of altruism in human nature, which have challenged dominant Darwinian interpretations on the basis of Christian theological or feminist ideological convictions. In this case, starting assumptions of functional design have generated empirically testable hypotheses that turn out not only to have been supported by data, but to have generated new research programs and additional data. Design can both generate progress and function within current scientific method (though not within reductive theoretical orthodoxy) when employed as a starting assumption with a theology of creation sufficiently specific to generate risky hypotheses.

The GISP2 Ice Core as Proof that Noah's Flood was not Global

An ice core nearly two miles long has recently been extracted from the Greenland ice sheet. The first 110,000 annual layers of snow in that ice core (GISP2) have been counted and corroborated by three different methods. Since the ice sheet would have floated away in the event of a global flood, the ice

Roundtable

"A Plague on Both Your Houses: Moving Beyond the Impasse Over Design Science"

Jeffrey Peter Schloss

Biology Department
Westmont College
955 La Paz Road
Santa Barbara, CA
93108
schloss@westmont.edu
805-565-6118

Paper

"The GISP2 Ice Core as Proof that Noah's Flood was not Global"

Paul H. Seely

Paul H. Seely
1544 SE 34th Ave.
Portland, OR 97214
phseely@aol.com
503-236-1339

Paper

**“Synthesis and
Sundering in
Science & Faith:
Ideas and Opinions
of James Clerk
Maxwell”**

Gregory D. Severn
University of San Diego
5998 Alcala Park
San Diego, CA 92110
severn@sandiego.edu
619-260-6845

Paper

**“Preserving
Biodiversity:
Perspectives from
Science, Ethics, and
Theology”**

Joseph K. Sheldon
Messiah College
Dept. of Natural Science
One College Ave.
PO Box 3030
Grantham, PA 17027
jsheldon@messiah.edu
717-766-2511 x6650

core is strong evidence that there was no global flood any time in the last 110,000 years. The three primary methods of counting the annual layers will be presented. Then the arguments offered by creation science advocates to refute the evidence of the ice core will be presented and refuted. Since the layers of the ice core are straightforward empirical data, not a complicated geological argument, they make an effective proof even for laypeople that Noah's flood was not global.

**Synthesis and Sundering in Science & Faith:
Ideas and Opinions of James Clerk Maxwell**

Maxwell's most majestic achievement in science was to unify branches of physics, light and electromagnetism, previously thought to be separate, into a single science: a grand synthesis wrought by his pioneering work with the field concept. As a devout Christian, Maxwell sought to understand the relationship between Faith and science, between the truths of each, and what stands under to support them. Did he have in mind another grand synthesis, one of a higher order? Maxwell's views, particularly as discerned in his inaugural lecture delivered in 1860 at King's College, London are examined in light of “Barbour's equations,” a comprehensive model for the relationship between science and faith, which, like Maxwell's equations, attempt to comprise all the disparate phenomena observed in relating science and faith with four fundamental relations. Maxwell's views fit best into Barbour's category of independence first published in the *American Journal of Physics* 47 (1979): 928.

**Preserving Biodiversity:
Perspectives from Science, Ethics, and Theology**

The “Biodiversity Crisis” is considered by many scientists to be the greatest environmental threat facing humanity. National Academy of Science luminaries such as Dr. Edward Wilson warn of an approaching catastrophic global extinction episode which may rival that of the great Permian extinction or the later Cretaceous events resulting in the loss of the dinosaurs. Spawned by such concerns, the Society of Conservation Biology formed in the early 1980s to address the threats facing Earth's biodiversity. This paper examines three related aspects. First to be considered is the evidence for species loss and the methods currently employed by conservation biologists to address the threat to biodiversity. Second, the ethical reasons for preserving biodiversity are explored. Third, theological aspects are addressed. It is concluded that the biblical concept of stewardship and the fruitfulness principle (Genesis 1 and 8) are ultimate and compelling reasons to preserve Earth's biodiversity. The steward's role is to manage creation in such a way that ecosystem integrity is maintained and each species remains fruitful—carrying out their full God-given potential. Human-induced species loss is a measure of our sinful failure to carry out this responsibility.

The First Christian Male and Female Scientists: John Philoponus and Hildegard of Bingen

Some of the most important features that distinguish modern science from its ancient Greek heritage can be identified in the early centuries of the Christian Church, especially in the Christological controversies that dominated Christian theology for more than a millennium. This can be illustrated from a review of the work of two of the most important contributors to the new incarnational understanding of the created order that finally emerged. These two were also the first male and female Christians, respectively, who qualify as significant scientists: John Philoponus in the sixth century and Hildegard of Bingen in the twelfth century. Emphasizing the logos doctrine and the deity of Christ, John Philoponus at Alexandria challenged Greek ideas about the perfection and divinity of the heavens, suggesting the unity of all the created order. Although these ideas took several centuries to reach Western Europe, they eventually became an important influence on Galileo. An emphasis on the humanity of Christ in the work of Hildegard of Bingen, a German nun and Benedictine abbess, contributed to a new appreciation of the reality and importance of the material world. She made important contributions to medieval botany and medicine, including treatises that were used in Europe for several centuries.

Faith Heals—Grace Pays

God's love moves him to create life which he sustains and protects with inherent mechanisms for healing. He promises healing. Faith potentiates this promise and drives the healing of hopeless problems. Faith empowers unexplained healing by placebos which may be a manifestation of faith enabling psychosomatic well-being. (Afflictions of flesh and spirit are inherent to life and are not punishments for sins, however, for lack of faith.) People's reliance on drugs for healing is greater than on our faith-powered God-given inherent healing ability. We are more likely to use reason for justifying "traditional" medicine but not any "alternate" medicine empowered by faith. Many rely especially on drugs designed for managing mental problems such as anxiety, depression, and stress. Such drugs are likely to reduce a believer's cost of discipleship and provide a "spirituality" that allows one to be comfortable with sinfulness and cheap grace. Faith in our God-created healing ability is unimportant when one lives by cheap grace. Cheap grace gives one comfort and eliminates the cost for discipleship. Jesus tells us the cost of discipleship, a cost that enables healing and the love needed to carry out his commands. We overcome the world with faith in his healing; drugs deafen us to the Holy Spirit compelling us to work for the Great Commission. Faith in his healing acknowledges that we have a time to develop a life-ending affliction and that we will always belong to the Lord.

A New Solution to the Dark Energy Problem

Recently, observations of distant type Ia supernovae have indicated that the expansion of the universe is accelerating. If this conclusion is confirmed by further observations, then there must exist some hitherto unknown repulsive force driving the expansion. This hypothetical force is often associated with

Paper

"The First Christian Male and Female Scientists: John Philoponus and Hildegard of Bingen"

Joseph L. Spradley
Physics Dept.
Wheaton College
1207 E. Wakeman Ave.
Wheaton, IL 60187
Joseph.L.Spradley@wheaton.edu
630-752-5895

Poster

"Faith Heals—Grace Pays"

Donald R. Strombeck
6626 Camino Del Sol Dr.
Rancho Murieta, CA
95683
strombec@calweb.com
916-354-2636

Poster

"A New Solution to the Dark Energy Problem"

Brian C. Thomas

Brian C. Thomas

1141 New Jersey St.
Lawrence, KS 66044
bthomas@ku.edu
785-840-0270

the energy inherent in the vacuum (due to quantum fluctuations) and is known as the “cosmological constant” or “dark energy.” The vacuum energy density as calculated using quantum field theory, however, is 120 orders of magnitude greater than the upper limit placed on it from supernova observations. We propose a novel and revolutionary solution to this problem. In current quantum field theory, the energy of the vacuum is seen as arising from the creation and annihilation of virtual particles. We suggest that this view should be replaced (or superseded) by the idea that there is one fundamental substance in the universe, manifested in two different states, matter and vacuum, and that these states both have their own inherent mass-energy. Therefore, the vacuum has its own energy independent of quantum fluctuations. We further propose that matter decays to vacuum, thereby converting its mass-energy into vacuum energy. That is, we propose that decay mechanisms that produce “missing” energy actually convert the energy of matter into the energy of the vacuum. This approach offers a natural explanation of the acceleration of the universal expansion, contains the fundamental forces already known to physics (though in modified form), and even offers testable predictions.

Plenary Speaker

“The Convergence of Science and Religion”

Charles Townes

Professor of Physics
University of California –
Berkeley
Berkeley, CA 94704
cht@ss.berkeley.edu

The Convergence of Science and Religion

Science and Religion are often viewed as necessarily separate aspects of our beliefs and understanding. But I see religion as an attempt to understand the purpose of our universe and science as an attempt to understand its nature and characteristics, so that the two are necessarily closely related. The so-called anthropic principle for the physical constants and recent discoveries in cosmology such as the “big bang” are at least suggestive of such a relationship. We furthermore try to understand each of these fields with all our human resources: intuition, observations, logic, and esthetics, with science and religion having different emphasis on these resources yet nevertheless using all of them.

Science has undergone revolutions in the past which have rather completely changed our views and yet science of the past has often maintained an important validity. It still faces many inconsistencies, and we must be open to new changes with deeper understanding and yet the continued validity of present science as an approximate model. Can we expect similar changes and deepening of our human understanding of religion? I will try to discuss the parallelism and increasingly strong interaction of science and religion which I visualize, along with the possibility of their ultimately merging into a more unified understanding of both the purpose and the nature of our universe.

Paper

**“Hugh Miller:
Nineteenth-Century
Geologist, Author,
Journalist, Reformer,
Evangelical
Christian”**

**Kenneth J.
Van Dellen**

**Hugh Miller: Nineteenth-Century Geologist, Author,
Journalist, Reformer, Evangelical Christian**

Born in 1802, fatherless when just five, he reportedly expelled himself from school after an altercation with his dominie (schoolmaster) at age seventeen, and was subsequently educated by two self-taught uncles. Soon after leaving school, he was apprenticed to a stonemason. The quarrying part of this occupation gave him ample opportunity to look at and study rocks and their features, such as fossils and ripple marks. By then he was already an excellent

writer. After a few years as a journeyman stonemason, he became a bank accountant, then a newspaper editor, and eventually a co-owner of the paper. Whatever his current occupation, his three passions were geology, the church, and writing, and he wrote mostly about geology, but also the church and Scotland. He became a social commentator and reformer and church reformer. He was highly regarded for his work in various spheres. For his science, he was respected by geologists Buckland and Agassiz, and naturalist T. H. Huxley. Tragically, he committed suicide at age 54, ostensibly as a result of nightmares and worries that made him believe his brain was being destroyed.

Backward Causation in Quantum Mechanics

This talk is based on my paper by the same name, submitted to the *American Journal of Physics*. I anticipate it will become a landmark metaphysical paper in our understanding of time, causality, and quantum mechanics. This paper is for God's glory, because he closed doors on my many false starts and opened other doors to keep me going. I was guided by my Christian beliefs. This paper has almost no mathematics and is written so that an undergraduate with a course in quantum mechanics (QM) and a basic understanding of special relativity (SR) can understand it. I will make it available at the conference and on our departmental homepage <<http://www.wheaton.edu/homePhysics.html>>.

As a physicist, I was driven to find a way to interpret QM and understand its non-locality in a way which is in total agreement with SR. I am committed to the theory of SR, and as a Christian, I wanted to combat a seemingly natural conclusion of SR that we live in a block universe, in which the future, although unknown, already exists. Also as a Christian, I wanted to combat the prevalent idea that causality doesn't exist in the quantum world. My Christian prejudices prefer to think that every event in the Universe is part of causal chains of events, which we can trace back to first causes. In the quantum world, these causal chains are usually probabilistic rather than deterministic. I invoke the idea of human free choice in which causal chains progress from human decisions as agents in the lab to the objects on which they act. However, I reject the notion that reality depends in any way on human consciousness. This paper brings understanding to many of the paradoxes and strange properties of QM. The work was started at the 1998 Faculty Summer Seminar in Christian Scholarship at Calvin College financed by the Pew Charitable Trusts.

Where Darwin Scores Higher than Intelligent Design

Both Cornelius Hunter and Debora Cadbury show that, in the 1820s, biblical perspectives were major factors filtering interpretations of earlier life forms; for example, in the citadel of biblical defense that was the Oxford University of its day. According to Cadbury's book on the early dinosaur hunters, the tumble of new bones was a significant factor in a vast shift away from "bondage to Moses." Hunter demonstrates conclusively that Darwin was pained until the day he died by the intellectual task of explaining the pervasive cruelty in nature. However, today, the wonderful and effective work of the evangelical pioneers in the Intelligent Design movement seems curiously unmoved by what was a major factor in the earlier confusion about violent

Kenneth J. Van Dellen

1018 Nottingham Road
Grosse Pointe Park, MI
48230-1332
kenvandellen@
home.com
313-821-5706

Paper

**"Backward
Causation in
Quantum
Mechanics"**

William R. Wharton

Physics Dept.
Wheaton College
Wheaton, IL 60187
william.r.wharton@
wheaton.edu
630-752-5894

Paper

**"Where Darwin
Scores Higher than
Intelligent Design"**

Ralph D. Winter

1469 Bresee Ave.
Pasadena, CA 91104
rdw112233@aol.com
626-794-5544

Plenary Speaker

“Faith, Science, and Service on Capitol Hill”

Jennifer J. Wiseman

Congressional Science Fellow
Subcommittee on Space and Aeronautics
U.S. House of Representatives
Committee on Science
2320 Rayburn House Office Building
Washington, DC 20515
202-225-7384

Paper

“Classically Canadian – Vintage Christian Naturalists”

John R. Wood

The King's University College
9125 – 50th Street
Edmonton, AB T6B 2H3
Canada
Jwood@kingsu.ab.ca
780-465-8344

animals and the concept of a good Creator. Some of our creationists are so eager to give God all the credit for creation that the element of evil therein seems now strangely to be less important than it was in Darwin's day.

Faith, Science, and Service on Capitol Hill

Christians have gifts that are needed at all levels of scientific inquiry and practice, including national science policy. I will describe my experience as a Congressional Science Fellow working at the U.S. House of Representatives in Washington DC. Science plays a role in nearly every issue considered by Congress, including not only basic research but also national security, the economy, international relations, environmental protection, agriculture, and education. I will reflect on questions critical to the interface between science support, public policy, ethics, and our faith: Why are scientists needed in Congress and in federal advisory roles? What insights and perspectives can Christians share in helping to guide good public science policy? How do Christian members of Congress and congressional staff grapple with difficult ethical issues such as human cloning, environmental destruction, and the drive of economic interests? What does it mean to “walk as Jesus walked” (1 John 2:6) when working in politics and science policy? In this context, I will talk about life and community on Capitol Hill. I also will share some insights on ways and reasons each of us can get involved in national policy.

Classically Canadian – Vintage Christian Naturalists

Some ideas simply get better with age. The insights of three Canadian naturalists stand out for the singular contribution each has made in initiating a facet of what we today recognize as environmentalism. Rev. George Taylor (1854–1912), “Wild Goose” Jack Miner (1865–1944) and Bill Mason (1929–1988) were all self-taught field naturalists. Yet, they share more than mere keen observation skills or a deep love of nature. Each one discovered new and practical ways of challenging others to be faithful stewards of the earth. Taylor, a beloved parish priest and skilled collector was the founding curator of the Pacific Biological Research Station on Vancouver Island. His insistence on scientific rigor, applied problem-solving and peer-reviewed publication helped the station establish a world-class reputation in fisheries research. “Wild Goose Jack” is the first “Father Goose” in North America, and best known for tagging geese with evangelistic messages. His passion for conservation led to the first private wildlife reserve in Canada. Each year National Wildlife Week recognizes his singular achievements in waterfowl conservation. Bill Mason, “the man in red canoe” was the most successful film maker in National Film Board of Canada history. His painting, film, books, and life have inspired many to finding a clear-eyed connection between God and nature. From science to wildlife conservation, to cinematography these achievements are remarkable, and so is the fact that so few people have even heard of these valuable examples of faith-based concern for the creation.

Artistic Concordism and Scientific Hypotheses

Artistic Concordism is a postmodern research project pursuing the question: If the early chapters of Genesis and the evolutionary record pertained to a single reality, then how would they “match”? Since each “origin story” derives from different historical moments and confessional traditions, any “match” must be artistic. However, the quest for a “match” forces the artist to examine the evolutionary sciences in new ways that bring together ideas in novel manners, resulting in new hypotheses in methodological naturalism.

The first “match,” between Genesis 1 and current scientific proposals on the evolutionary record, inspired this artist to propose that Genesis 1 derives from an oral tradition initially preserved as an elite family tradition within the cultural milieu of ancient Mesopotamia. The second “match,” between the creation of humans “in the image of God” and current proposals on the “naturalness of religious ideas,” led this artist to look at religions as cultural sign systems that co-evolved with humanity. A semiotic analysis of religion links cultural studies, cognitive psychology and evolutionary theory. The third “match,” between “the Story of the Fall” and cultural changes during and since the Developed Neolithic, motivated this artist to propose that a change in “the way humans talk” potentiated the emergence of complex society. These three hypotheses concern signs in the context of psychology, anthropology, and sociology. Semiotics (the “Peircean” study of signs) may provide a framework for developing an appreciation of science from the perspective of the Christian humanities and new hypotheses in methodological naturalism.

Paper

“Artistic Concordism and Scientific Hypotheses”

J. Raymond Zimmer

Dept. of Radiation Oncology
Providence St. Vincent
Medical Center
9205 SW Barnes Rd.
Portland, OR 97225
Jzimmer@
Providence.org
503-216-5804