



NEWSLETTER

of the
American Scientific Affiliation &
Canadian Scientific & Christian Affiliation



Volume 49, Number 5

Sep/Oct 2007

ASA Joins CiS in Edinburgh for Its Annual Meeting “NEW FRONTIERS IN SCIENCE AND FAITH”

The ASA and its UK counterpart, Christians in Science (CiS), blended their intellectual resources for a 3-day idea-fest at the University of Edinburgh, Scotland, August 2–5, 2007. Under the overall theme of “New Frontiers in Science and Faith,” plenary speakers explored frontiers in (1) Planet Care, (2) Genes and Evolution, (3) Neuroscience, (4) Cosmology, and (5) Bioethics.

Defragmenting Our Thinking

One speaker noted that computers store files in available space, often dividing

a given file into dozens or hundreds of fragments, which must be “defragmented” frequently to enable the computer to work optimally. He used this to illustrate the need for Christians to “defragment” their thinking, integrating scientific knowledge with Christian faith, “bringing every thought into conformity to Christ.”

Speakers included five Fellows of the Royal Society (FRS), the UK’s Academy of Sciences. In addition to the US, Canada, and the UK, speakers and

attendees came from several countries of Europe and as far away as New Zealand. Overall attendance was 275, including 154 ASAers.

John Bryant, moderator of the closing session, summarized: “We’ve covered a spectrum of subjects: From the quantum to the mind, from the subatomic to the galactic, from ... an event 13.7 billion years ago until the future.”

In these twelve pages, we present “fragments” of the information and insights that were shared. —*The Editors*

McGrath Offers “Resonance,” Not Proof

The CiS/ASA conference keynote speaker was Alister McGrath, professor of historical theology at Oxford University. He cited six “New Frontiers in Science and Faith”:

1. *The growing interest in “anthropic” phenomena, and their importance for the science-religion dialogue.*

The term “anthropic principle” means the universe appears to have an innate propensity to encourage the emergence of life. McGrath said, “This is not about ‘proof,’ but about observation of ‘empirical fit’ or ‘resonance’ between theory and observation”—i.e., “inference to the best explanation.”

2. *The recent emergence of a very aggressive “scientific atheism.”*

Dawkins argues that science proves with certainty anything worth knowing. Everything else—especially belief in God—is just delusion, wishful thinking, or madness.

Dawkins argues that a “God-meme” makes people believe in God. McGrath disputed that it exists, but says if it does, “Isn’t atheism also the result of a meme?”

3. *The increasing importance of the cognitive science of religion, and its implications for the science-religion dialogue.*

Responding to the charge that religious concepts are abstract while scientific theories are intuitively obvious, McGrath quoted Bas van Fraassen: “Do the concepts of the Trinity, the soul ... and potentiality baffle you? They pale beside the unimaginable otherness of closed space-times, event-horizons ... and bootstrap models.”

4. *Attempts to use the natural sciences as a dialogue partner in scientific theology.*

5. *Increasing interest in retrieving the discipline of “natural theology.”*

William Alston defines natural theology as “the enterprise of providing support for religious beliefs by starting from premises that neither are nor presuppose religious beliefs.”



Alister McGrath

McGrath added, “Natural theology is not to be seen as an independent attempt to ‘prove’ God’s existence, or bypass divine revelation. It is the approach to nature that arises from within the Christian tradition.”

6. *How to encourage a new generation to develop interests in the field of science and faith.*

A copy of his overall presentation (as PowerPoint slides) is available on the ASA website: www.asa3.org/ASA/meetings/Edinburgh2007/papers/Edinburgh_McGrath.ppt

ASA/CiS Meeting Web Links

The CiS/ASA Programme and Abstract Book is available at: www.asa3.org/ASA/meetings/Edinburgh2007/Edinburgh_paperlinks.html

Audio recordings are available at: www.asa3.org/ASA/meetings/Edinburgh2007/

The Executive Director's Corner

Randall D. Isaac

Electronic communication has become a cornerstone of networking in today's world. ASA is a fellowship of Christians in science, and the internet is a powerful enabler. Yet, face-to-face personal interaction remains a necessary and vital aspect of fellowship. This year's meeting at Edinburgh was a powerful reminder of the value of direct communication. This issue is devoted to a summary of our joint meeting with our sister organization in the UK, Christians in Science (CiS).

The conference was titled New Frontiers in Science and Faith. The message was loud and clear. While many issues are centuries old and continue to be debated, there are new and stimulating questions arising. Many of these new questions derive from advances in science and technology. Gareth Jones, for example, shared a history of medical ethics issues that arose in the 19th century that now need to be applied to new capabilities such as embryo genetic diagnostic and manipulation techniques. Neuroscience gives us amazing new insight into the nature of our perception and sensory abilities. Cosmology allows us to peer even further into the intricacies of our vast universe. Our rapidly changing environment makes us realize that we have an urgent responsibility to heed God's commission to care for our planet.

The *Newsletter of the ASA and CSCA* is published bimonthly for its membership by the American Scientific Affiliation. Send *Newsletter* information to the Editors: David Fisher, 285 Cane Garden Cir., Aurora, IL 60504-2064. E-mail: dfisherasa@comcast.net and Margaret Towne, 8505 Copper Mountain Ave., Las Vegas, NV 89129. E-mail: TowneMG@aol.com. Both receive e-mail through asan@asa3.org

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Send address changes and other business items to the American Scientific Affiliation, P.O. Box 668, 55 Market St., Ipswich, MA 01938-0668. Phone: (978) 356-5656; FAX: (978) 356-4375; E-mail: asa@asa3.org; Web site: www.asa3.org

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Most visibly, we are also facing an explicit and hostile attack from the world of the "new" atheists. The warfare model invented in the 19th century by Draper, White, et. al., seems to be re-discovered with a vengeance as Dawkins' books have emboldened a fresh wave of antagonism toward religion. Keynote speaker Alister McGrath has been a front-line warrior in responding to these attacks. We must all recognize the threat and rise to join the battle.

Personally, I was thankful that I could even physically attend. My doctor gave me clearance to travel only a few days before the meeting. During the last six months, I experienced a subtle ministroke that led to a permanent blind spot in the center of my left eye vision. A series of medical sleuthing identified a patent foramen ovale (a hole in the septum in the heart, for those of us who don't know the lingo) as the culprit. While repairing that defect on June 27, the doctor unexpectedly discovered a major blockage of the left anterior descending artery. I woke from anesthesia to discover I had a drug-eluting stent as well as the occluder that closed the hole. I don't understand all the implications, but I'm told this blockage could have been fatal in the next few years.

This was quite a wake-up call for me. I was thrust into an insight into medical ethics that I never expected. The medical services I could access here in the Boston area are simply not available in many parts of the world. Yet, until we have better statistics, it isn't wise to deploy new technology too rapidly. I could see from my own example that it is extremely difficult to obtain good statistical data on which to base medical decisions. Many decisions depend on the intuition of the attending physician based on his or her knowledge of the most current information. For those of us not trained in medicine, this means we have to select our physician carefully.

What does our Christian faith have to offer in this complex world of technological advances in medicine? Is there more than setting a barrier beyond which we feel we should not tread? Is there more than a generic call

to heal and minister to the sick? To whom have we entrusted to set the guidelines for our decisions? Legislators? Medical researchers? Pharmaceutical companies? There seem to be no easy answers. What seems clear is that more of us as Christians need to become involved and study the issues. ASA has a long history of addressing medical ethics, an area that needs continued focus.

Make your plans now to join us next year at George Fox University, Newberg, Oregon, on the first weekend of August for another stimulating time of fellowship and sharing.



Welcome, New Members! June–July 2007

Bennett, Luke –Harrison, AR
Black, Victoria M. –Newberg, OR
Bobeck, Melissa J. –Atlanta, GA
Bobeck, Drew R. –Atlanta, GA
Collins, Sean M. –Dracut, MA
Colson, Russell O. –Hawley, MN
Colvard, Stacy –Durham, NC
Cooper, George A. –San Antonio, TX
Eichel, Joseph C. –Augusta, GA
Hayes, James L. –Huntsville, AL
Hensley, Kate –Wheaton, IL
Horbinski, Craig M. –Pittsburgh, PA
Johnson, Ryan –Vancouver, WA
Jones, Samuel –Zanesville, OH
Kajorinne, Steven D. –Calgary, AB Canada
Knoll, Paul R. –Berrien Springs, MI
Koenigsmark, Paula –Mounds View, MN
Koning, Aaron –Grandville, MI
Lewis, Paul –O'Fallon, MO
Liebe, Sarah –Milbank, SD
Lilly, Linda A. –Morgantown, WV
Long, David L. –Winston-Salem, NC
Meyer, Ken –Circle Pines, MN
Morris, Tim –Lookout Mountain, GA
Mulholland, John C. –Chicago, IL
O'Rourke, Christine –Houston, TX
Papp, Esther M. –Temecula, CA
Pope, Darrick –Longview, WA
Reid, Scott A. –Germantown, WI
Rice, Frank L. –Delmar, NY
Riensha, Rachel –Lansdale, PA
Salter, Alexandra –Portland, OR
Sigsbury, Elizabeth –Wheaton, IL
Sleasman, Michael –Deerfield, IL
Steele, Derril L. –Park City, UT
Swearingen, Carla B. –Siloam Springs, AR
Switzer, Frank L. –Waynesburg, PA
Thorne, Curtis A. –Nashville, TN
Top, Sara M. –Maurice, IA
Van Buskirk, Ronald –Sherman, TX
Van Hook, Daniel J. –Framingham, MA
Vastine, Ben –Bryan, TX
Walter, Elizabeth –Missoula, MT
Warman III, Lawrence K. –Lothian, MD
Warren, Whitney A. –Beaverton, OR
Weser, Oscar E. –Del Mar, CA
Witte, Matthew –St. Louis, MO

Summaries of Plenary Sessions Five Frontiers in Science and Faith

1. Planet Care

Challenge of Global Warming

Sir John Houghton, FRS, an emeritus professor in atmospheric physics at the University of Oxford, opened this session with “Global Warming: The Challenge to Scientists and Christians.”



Sir John Houghton

Likening Earth to a spaceship with six billion passengers, he stressed

the need for *sustainability*, defined as not cheating on our children, ... not passing on to ... any future generation, an Earth that is degraded compared to the one we inherited, and also sharing common resources with our neighbours in the rest of the world and caring properly for the nonhuman creation.

Sir John warned that “business as usual” would result in increased climatic extremes, including droughts, and “100-year floods” accelerating to 20-year intervals, resulting in hundreds of millions of “environmental refugees.” He urged a change from international greed and covetousness to sharing.

Sir John thinks the necessary actions are achievable because (1) the scientific community is committed to it, (2) the necessary technology is available and (3) we have a God-given task of being good stewards of creation. He invoked Edmund Burke, who said, “No one made a greater mistake than he who did nothing because he could do so little.”

“Global Warming, Climate Change and Sustainability,” a 16-page paper by Sir John Houghton is available online: www.jri.org.uk/brief/Briefing14_print.pdf

Enjoy, Don't Destroy

CiS President Sir Ghilleen Prance, FRS, former director of the Royal Botanical Gardens in Kew, currently is scientific director of the Eden Project. Asking “Why should a Christian care about

biodiversity?” he provided a multi-faceted answer.

Two utilitarian reasons are: (1) that forests have provided 50% of the medicines we currently use, and additional plants may have still-undiscovered curative powers, and (2) if mangrove forests had not been decimated by humans, they would have reduced the severity of recent tsunamis.

Sir Ghilleen believes aesthetic factors and enjoyment are even more important than the utilitarian. “And out of the ground the Lord God caused to grow every tree that is pleasing to the sight and good for food” (Gen. 2:9a). He added, “Creation was given to us to enjoy but not destroy.”

The primary reason to care for creation is Christ’s role in it. John 1:1–3 and Col. 1:15–16 point out, respectively, “All things were made by/through him” and “by him all things were created.”

Sir Ghilleen noted, “God’s concern is not just for human beings, but for all of his creation.”

Where in the Rainbow Do Christians Fit?

“Should Christians Be Green?” Robert White, FRS, professor of geophysics at Cambridge University and associate director of the Faraday Institute, provided a two-part answer:

1. No, not in the sense of being linked with New Age and “tree hugging.” “Christians should not be hung up on single issues ... The most important issue of all is getting back into right relationship with God, of turning around from our self-centered ways to putting God’s sovereign rights as our Creator first.”

2. But yes, “the way we treat the world ... God has created will be a reflection of how we honor and worship him ... And God’s very first commandment was for humankind to care for the world on his behalf.”

In his presentation, “The Biblical Basis of Care for the Environment,”

White continued, “Rather, Christians should be multi-coloured.” Green is at the center of the ROYGBIV rainbow.

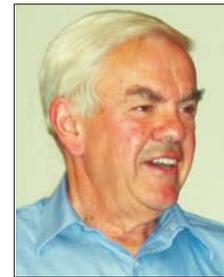
Genesis 1 is God’s mission statement. It says three things: (1) God created the world; (2) God’s material creation is good; and (3) God sustains his creation continually.

White said that if we don’t care for our world, “we are acting rather like teenagers who with a wild party have wrecked a family home that has been lovingly created for them by their parents.” He warned:

Those who suffer from rapid climate change ... will be the poor, the marginalised, those already living on the edge in places like sub-Saharan Africa. They will suffer the effects of increased droughts in some places, of floods in others, or increased susceptibility to disease and to heat waves ... One hundred million mostly poor people live within one metre of sea level. It is they who will lose their homes, and their livelihoods, maybe even their lives.

What Is Our Response?

Cal DeWitt closed the session with “Our Personal Response.” He used 19th-century Scottish-American John



Cal DeWitt

Muir as a role model, pointing out that from childhood Muir “was fond of everything ... wild.” Wandering in the fields and along the seashore, he soon learned that

the “Kirk universal” transcended church buildings and “temples made with human hands.” In an 1875 article in *Harper’s*, Muir reflected on “the scriptures of the ancient glaciers” that “cover every rock, mountain, and valley of the range, written in so plain a hand, they have long been recognized even by those who were not seeking for them.”

In Gen. 2:15, various translations render the verb “*abad*” as “work,” “till,” “dress” and “serve.” DeWitt interprets:

We know from experience that gardens ... serve us—with good food, beauty, ... nutrient processing, and seed production.

Yet Genesis addresses *our* service to the garden. What is expected of Adam, and of us, is returning the service of the garden with service of our own: a reciprocal service—a *con*-service, a *con*-servancy, a *con*-servation.

DeWitt described how ludicrous the alternative would be: “Praising God for creation while at the same time degrading the marvelous works of God is much like praising Rembrandt while despising his paintings.”

2. Genes and Evolution Evolution’s Structure

This session began with Simon Conway Morris, FRS, asking “Does evolution have a deep structure, and if so what are the theological implications?” Conway Morris is professor of evolutionary paleobiology at the University of Cambridge.

He pointed out that “received wisdom” among evolutionary biologists is that the outcomes of the process are effectively indeterminate, subject to only the broadest constraints, such as that stones invariably fall and water is always wet. Outside those limits, there allegedly is no predictability in evolution, exemplified by Gould’s analogy of playing a tape multiple times and getting different outcomes. If correct, this would indicate that humans are just another species, an evolutionary fluke.

However, recent work on evolutionary convergence seriously questions this view, not only because of the parallel emergence of very similar cognitive landscapes in different groups, but also because many of the principal building blocks needed for the emergence of intelligence evolved billions of years before the first brain.

Conway Morris explored the possibility that evolution has inherent directionalities and outcomes, which may indicate “a deep structure across which evolution is compelled to navigate.”

He continued, “If, moreover, sentience is an inevitability then given our failure to understand consciousness on a naturalistic basis ... it may transpire that evolution is merely the Universe’s way of bringing us to the edge of the natural world and beyond.”

Explaining vs. Explaining Away

Next **Jeff Schloss**, from Westmont College’s Center for Faith, Ethics and Life Sciences, presented “Evolutionary Accounts of Religion and Altruism: Explaining vs. Explaining Away.” Jeff’s talk had three parts. First, he assessed the starting assumptions of evolutionary work on religion. Beyond the scientific commitment to natural explanations, there is often a conviction that religious beliefs can be explained solely in terms of causes, not rationales.



Jeff Schloss

Second, Jeff described three major evolutionary approaches to religion. Adaptationist accounts see it as contributing to human biological flourishing. Cognitive spandrel theories see religion as a non-adaptive by-product of innate cognitive dispositions. The most publicized view is that religion is a pathogenic “meme” or mental virus. Richard Dawkins famously claims: “Faith is one of the world’s great evils, comparable to the smallpox but more difficult to eradicate.”

Third, Jeff commented on implications for religious belief itself. Aspects of all three approaches—cognitive innateness, role in human flourishing, and human uniqueness—are consonant with (though not demonstrative of) biblical perspectives. However, such theories also raise challenges. Philosopher Alex Rosenberg asserts:

The Darwinian explanation becomes the Darwinian Nihilist’s “explaining away” when ... our best theory of why people believe P does not require that P is true, then there are no grounds to believe P is true.

Jeff concluded that while it is important to affirm the credibility of faith,

the best evidence is not argument alone, but love. His final slide of the Good Samaritan had the caption, “By this will the world know that you are my disciples—that you have love for one another.”

The Mode of Achieving Design

Ernest Lucas presented “Interpreting Genesis 1–3.” With PhDs in chemistry and Oriental studies, he is vice-principal of Bristol Baptist College.

Quoting Calvin’s commentary on Genesis, Lucas pointed out that Moses was using the language of the ordinary person: “Moses wrote in popular style things which, without instruction, all ordinary persons, endued with wisdom and sense, are able to understand.”

Moses also used the language of appearances: “Nothing is here treated ... but the visible form of the world. He who would learn astronomy and other recondite arts, let him go elsewhere.”

A quarter century after the publication of *Origin of Species*, Frederick Temple interpreted:

What is touched by this doctrine [of evolution] is not the evidence of design but the mode in which the design was executed ... In the one case the Creator made the animals at once such as they now are; in the other case he impressed on certain particles of matter ... such inherent powers that in the ordinary course of time living creatures such as the present were developed ...

In either case, “It is he who has made us, and not we ourselves.” Lucas added, “The vitamins declare the glory of God, and the cell shows his handiwork.”

One of God’s purposes in inspiring these chapters was to present a true understanding of himself in contrast to pagan ideas—revealing that he is self-existent, rational, providing nature with laws inherent to it, and making humans in his image, capable of understanding natural laws. Another purpose was to present the nature and purpose of human beings. This includes the fact that humans were created, not to be slaves of the gods, but to have fellowship with the true and living God.

The Really Hard Questions

Concluding the session was Denis Alexander, editor of *Science and Christian Belief* and director of the Faraday Institute for Science and Religion, St. Edmund's College, Cambridge. Beginning his lecture entitled "Darwinian Evolution: The Really Hard Questions," he said that two questions almost always dominate the question-and-answer period following a talk with church or student groups:

1. How does the fact that God repeatedly states that his created order is "good" correlate with a prolonged evolutionary process involving pain, death and extinction? and
2. How do the evolutionary origins of anatomically modern humans relate to the Genesis account of Adam and Eve, especially relating to the Fall?

Acknowledging that he didn't have ultimate answers to these perennial questions, he hoped merely "to flag up some positions and pointers which ... might be helpful for further discussion."

What is "good"? He thinks usable, effective, "fit for the purpose," is the most apt definition in the early chapters of Genesis.

He differentiated three types of death in the Bible: physical; spiritual death here and now; and eternal spiritual death, the second death. He summarized:

Physical death is temporary and not to be feared. Spiritual death, separation from God, is to be put right by repentance and faith in Christ, leading to the assurance of resurrection to eternal life. The only death to be really scared of is the second death, but Christ frees us from that fear as we put our trust in him.

He described five views of who Adam and Eve were. He thinks the biblical evidence favors interpreting the Fall as a historical event.

3. Neuroscience

Determinism and Free Will

Peter Clarke is associate professor in the Department of Cell Biology and Morphology at the University of Lausanne, Switzerland. Speaking on "Determinism and Free Will," Clarke

focused on the question, "If our brains work mechanistically, then our behavior must be predetermined, so how can we be free?"

Of the three most frequently-cited responses, he rejected "hard determinism," the view that "the past completely determines the future, including that of our brains, so free will is an illusion." He evaluated the respective merits of "compatibilism: determinism is compatible with free will and human responsibility" and "libertarianism: we do have free will, and this is incompatible with determinism." He concluded that compatibilism is the better interpretation, since it comports well with the monistic view that "man does not have a soul; he is a soul."

Brain and Mind

"Recent Developments in Brain and Mind" was the topic of **Bill Newsome**, professor of neurobiology at Stanford University. He has won several awards for his research, focusing on the neural mechanisms underlying visual perception.



Bill Newsome

The central dogma of neuroscience is that "all behavior and mental life—from our perception of the external world to our experience of conscious thought—emerges from, and is inextricably linked to, the biology of the brain."

Some of the first evidence came from studies of brain-damaged patients. More recently, Canadian neurologist Wilder Penfield showed that stimulation of the brain alone is sufficient to generate conscious experience. Roger Sperry and his colleagues at Caltech split the *corpus callosum*, the structure that links the brain's two hemispheres. That procedure severs human consciousness—causing each hemisphere to have a completely independent conscious awareness of what it's doing and how it's interacting with the world. The two hemispheres are completely unaware of each other.

Newsome opined that if science figures out how to understand consciousness, "That discovery will transcend the Nobel Prize; it will be like Newton or Darwin. The Nobel Prize will just be a pretty bauble on top of it."

Cognitive Science and the Evolution of Religion

Nancey Murphy, professor of Christian theology at Fuller Theological Seminary and a member of the Board of Directors of the Center for Theology and the



Nancey Murphy

Natural Sciences, spoke on "Cognitive Science and the Evolution of Religion." She explored the approach that attempts to explain the origin of religious beliefs as by-products of cognitive modules that evolved to solve adaptive problems of our hunter-gatherer ancestors. Many advocates of this approach hypothesize that, after origination, religious concepts then spread according to epidemiological patterns, like Dawkins' hypothetical meme.

Although Nancey criticized these theories as reductionistic, she stated that they need to be taken seriously by Christian philosophers and theologians. Murphy endorsed Arthur Peacocke's concept of a nonreducible hierarchy of sciences, with theology at the top, as a model for appropriating the cognitive science of religion. Historically, she pointed out that Catholic modernist theologian George Tyrrell had already incorporated similar concepts into his thinking about the origin and development of religion a century ago. She is convinced that "Religion is a human phenomenon, while Christianity is something else entirely."

4. Cosmology

Space, Time and Eternity

Sir John Polkinghorne, FRS, lectured on "Space, Time and Eternity." He was formerly professor of mathematical physics at the University of Cambridge, before becoming an Anglican priest in 1982. He received the Templeton Prize in 2002.

Sir John said, “Fundamental physics has become extraordinarily speculative in the last thirty years,” having previously been primarily driven by experiment. For example, regarding the possibility of multiple universes, he said that cosmologists have speculated about our universe being “one particular specimen of an immense portfolio of different universes, a vast multiverse in which there are all sorts of different universes—different sizes, different laws of nature, different strengths of forces, and so on and so on.” He called it “an idea of quite incredible ontological prodigality” that would make William of Ockham turn in his grave. He concluded that the concept is a dodge devised to avoid theism.

A recurring theme throughout his presentation was that physics constrains metaphysics, but it does not determine it. He stressed that one can take science absolutely seriously without believing the universe is closed and mechanistic.

Undoing Einstein

Newly elected as an ASA Fellow this year, **Joan Centrella** spoke on “Binary Black Holes and Gravitational Waves: Opening New Windows into the Universe.” As Chief of the Gravitational Astrophysics Laboratory at NASA’s Goddard Space Flight Center, she made clear her appearance wasn’t an official NASA presentation but her personal thoughts and reflections.



Joan Centrella

When galaxies merge, they may produce massive black hole binaries. These binaries generate potentially detectable gravitational waves. Her team would be able to compare them with general relativistic predictions and do a strong test of General Relativity. She explained,

Einstein put space and time together in the most beautiful way. If you’re going to solve these equations numerically on the computer, you have to unfortunately deconstruct that. You take space and time and

split it into space-like slices and curves of time that thread through those slices. You start out with binary on one of those slices, and then you evolve in a large computer code accurately.

Such a complex computation repeatedly crashed computer codes. After many attempts at rewriting the equations, they found the usual equations contained parasitic modes, causing the computer to give right answers plus wrong answers. Joan’s group and the Brownsville, Texas, group simultaneously discovered ways to solve the “unsolvable” problem.

Embedded in her talk was a candid account of her journey away from faith and back to a close relationship with the Lord. Her struggles were less with issues of science and Christian faith than with various conflicts within the church, such as the role of women. She expressed a love and passion for God as well as for her scientific career.

5. Bioethics Emerging Technologies and Human Dignity

Nigel Cameron reminded the audience they were “just down the road from Dollyland,” where Dolly the sheep had been cloned. As Director of the Center on Nanotechnology and Society at the Illinois Institute of Technology and Chair of the London-based Centre for Bioethics and Public Policy, Cameron spoke on “Emerging Technologies and Human Dignity.” He said that for a generation, questions of ethics and technology have largely centered on biological issues such as genetics, cloning, and use or abuse of embryos. Yet the human future will be uplifted or degraded by the emerging technologies of nanotechnology, biotechnology, information technology and cognitive science.

Cameron believes current controversies about stem cells and cloning are “just pinpricks in comparison with the kind of assault which we will face within our societies when these emerging technologies begin to come on stream and have commercial and policy applications.”

He devoted much of his lecture to Transhumanism, a movement that advocates augmenting human abilities by using revolutionary new technologies. Transhumanists, including Unabomber Ted Kaczynski, have made considerable progress in propagating their fundamental assumptions in policy contexts.

The US controls three-quarters of the global research and development in most of these technologies. Cameron is presently looking to set up the Center for Policy on Emerging Technologies in Washington, DC, and to have a global network attached to it with a trans-Atlantic dialogue and some components in Asia.

Designers of the Future

Gareth Jones, professor of anatomy and structural biology at the University of Otago, New Zealand, spoke next on the theme “Designers of the Future.”

Many reports in biomedical science refer to “designer babies” and prospects for medically enhanced human beings. One gets the impression that before long there will be people who have been designed with specific characteristics, or who will live until some unimaginable age. Topics once only treated in science fiction are now part of serious scientific and philosophical discussion. On balance, Jones stated

The design and enhancement that are integral to actual medical endeavors are far more restricted in their capabilities and are, I would argue, implicit within the Christian vision of human responsibility and human community.

In the 19th century, the average life span was 30–31 years. It has been increased by a combination of modifying the environment (e.g., by improving hygiene and sanitation) and by modifying the individual (e.g., by vaccination and immunization). Yet the benefits have been unevenly distributed throughout the world. There are currently 1.8 million deaths per year due to diarrheal disease. The average life span is 78.7 years in the UK, compared to 32.2 years in Swaziland. Much of our effort can advantageously be directed to “designing the present.”

Summaries of Parallel Sessions



Most of the parallel sessions were held in the opulent rooms of St. Leonard's Hall (1870s).

He reminded us of crucial juxtapositions: “our elevated stature alongside our mortality, our authority over the creation alongside our own need to be subject to a higher authority, the way in which we are cared for by God over against the care and control we are to exercise over the creation and others in the human community.”

Biotech Crops

Joe Perry has worked for many years in pioneering agricultural biotechnology as a quantitative ecologist in the plant and ecology division of Rothamsted Research. He entitled his talk “Biotech Crops: Where Are the Frontiers?”

He evaluated various risks involved in genetic modification (GM) of crops: food safety, effects of gene flow, environmental harm, and socio-economic issues. Perry reported that many results have been good. For example, plants have been modified to be insect-resistant, reducing or eliminating the need for pesticides, thereby producing an 80% reduction in human deaths caused by pesticides. But the average GM risk assessment is a 2000-page document, and the European Union has approved no genetically modified crop, due to political considerations. Even Prince Charles has commented that our guiding principle of a duty of stewardship for the earth “has become smothered by ... scientific rationalism. If literally nothing is held sacred anymore ... what is there to prevent us treating our world as some ‘great laboratory of life’ with potentially disastrous long term consequences?”

Perry concluded: (1) there appears no explicit biblical restriction on the manufacture of GM crops; (2) the growing of GM crops does not have consequences that must *of necessity* be outside God’s will; and (3) the manufacture of GM crops is not immediately debarred as an unwarranted usurping of God’s function as Creator of life.

He added that the use of wheat in ethanol plants is “crazy.” Perry advised looking elsewhere than conventional agriculture, and suggested other plants that would be more appropriate for ethanol production.

Appropriate Technology

ASA is not only committed to intellectual discussion but to using science and technology for the good of humanity and the whole world. Three well-attended parallel sessions addressed appropriate technologies. The first session addressed “Water, Energy, and Bridges.”

Ken Touryan spoke of his firsthand experience in managing projects for water purification in Middle Eastern countries. He described the growing crisis of limited fresh water availability, with 26 countries considered “water-scarce,” a number that may double in the next few decades. Technologies that provide fresh water in conflict-torn areas can meet critical needs and enhance reconciliation among traditional adversaries.

“Bioenergy: A Fuel for All Seasons” was presented by Paul M. Means of Puyallup, WA, and Noelle Means Allison of Muncie, IN. They maintained that as Christians we are called to be stewards of God’s creation and must be active in reducing energy usage and in finding new, nonfossil, renewable sources of energy. They concentrated on bioenergy (sometimes termed biomass energy) from sources such as wood, corn, sugarcane, rapeseed, switchgrass and sorghum. It’s a transportable, storable and renewable fuel, and its generation promotes jobs for a wide distribution of people, especially in rural areas.

“Building Bridges to a Better Future: Bridging the Gap—Africa” was the subject of William Jordan of Waco, TX. We take bridges for granted, but in sub-Saharan Africa there is a need for them. Pedestrian footbridges can overcome the dangers posed by rivers and ravines that threaten safety and limit people’s access to education and healthcare. Engineers at Baylor University have partnered with Bridging the Gap Africa to design pedestrian suspension bridges.

The second session explored ways of feeding the poor. **David Unander**, a biologist at Eastern University, showed

how a knowledge of pre-industrial agricultural methods can be valuable to improving agricultural methods in developing countries. Creative ideas, both old and new, need to be spread globally to effectively address the geographical demand for food.

John Hodges, from Austria, spoke of the need for “bottom-up” technical know-how rather than “top-down magic bullets” in order to empower the poor to grow their own food. The biblical model indicates that we should be using science to help the poor use their proximal bio-resources to obtain food and better quality of life.

Robert Sluka, of the Millennium Relief & Development Services, examined the effectiveness of tsunami relief and the need for conserving marine resources. He described how anthropogenic factors had greatly altered coastal regions and the availability of marine resources. His own work in tsunami-relief in India and in marine conservation in the Caribbean Sea and the Indian Ocean showed the importance of understanding the basic science and technology of marine life. That understanding is fundamental to deploying technology in ensuring sustainability.

Despite being held on a late Saturday afternoon (5–6:30 pm), over 40 people attended the third session. That’s a reminder that applied engineering and scientific projects that have socio-economic impact in the developing world, have finally *come of age* at the ASA and are attracting many members.

All three papers had to do with engaging faculty and engineering stu-

dents in appropriate technologies that can have great potential in improving the quality of life in developing countries. **David Vader** covered the activities of faculty and staff from Messiah College empowering the poor in Central Africa, in partnership with other organizations such as World Vision. William Oakes covered the same type of activity in a secular setting, Purdue University. Its emphasis is a locally based long-term service program called EPIC. **Walter Bradley** talked about a new center at Baylor University to address the needs of the poor in developing countries. One ongoing project focuses on the use of coconuts as a sustainable multipurpose source for food, energy, fibers, etc.; another on the use of Styrofoam blocks for low cost, modular construction of residential dwellings. ✉ **Ken Touryan**

Bioethics I

The underlying theme of this session was cognitive science rather than bioethics as the title implied. All three papers sought to explore the relationship between the image of God found in humans and the biological neural substrate of our cognitive mechanisms.

Neuroscientist Mark Schelhamer explained that we have been designed so that the choices we make and the environments to which we expose ourselves cause continual physical changes in our brains. The extent of this neural plasticity means in essence that we are co-creators of our own selves in an ongoing dynamic process, and this may be one way in which we reflect divine creativity.

Psychologist David Booth argued for the interaction of genes, physical environment, family, and other social factors in shaping who we become. His exegesis of Genesis 1 stressed our social relationships and responsibilities within the family. Human sociality differs from other creatures in that shared intentionality is unique to humans. Developed during mother/infant interaction, this capacity makes human social relations possible.

Neurologist **William Cheshire** showed a slide purporting to be his own brain

on jet lag. This was quite believable as most ASAers were acutely aware of our cognitive impairment on jet lag. Numerous brain imaging studies that Bill brought to our attention, show that many areas of the brain are used during moral decision-making, and these necessarily involve both emotion and reason. Because emotion and reason are both necessary to solve moral dilemmas, Bill could echo 1 Cor. 12:21 with the affirmation "The parietal lobe cannot say to the cingulate gyrus, 'I have no need of you.'" ✉ **Judith Toronchuk**

Bioethics II

King's College, London, psychiatrist Alun Morinan presented "Engineering Behaviour through Drugs and Genomics." Prozac is one example of "lifestyle drugs," used for nonclinical conditions or problems that would be more suitably addressed by lifestyle change; e.g., taking lovastatin to lower blood cholesterol rather than adjusting diet.

Morinan asked: (1) Should individuals who are less intelligent, less happy or more introverted accept their psychological make-up, or should we correct genetic and social injustices with a drug or DNA manipulation? (2) Will their widespread use lead to homogenization of human traits, or because it is likely to be affordable only by the rich, lead to even greater societal polarization? (3) What implications does this have for being created in the image of God?

Dennis Sullivan of Cedarville (OH) College addressed "Embryonic Stem Cells from Non-Destructive Sources: A Way Out of the Ethical Quagmire?" He suggested three possible ways to produce pluripotent stem cells without destroying human embryos. Sullivan's presentation focused on the ethical pros and cons of each. If the scientific community is to proceed in these contentious areas of research, then it should be with the widest possible ethical consensus.

In "Morality, Disgust and Emotional Systems," Trinity Western prof. **Judy Toronchuk** discussed the role of disgust in moral behavior. In lower vertebrates, disgust is a protective mechanism to prevent contact with or ingestion of disease-producing material.

Apparently evolution by itself cannot underlie the development of genuine morality, entailing the power to label various practices "good" or "evil" in a culturally independent way, but it does provide an important aspect of its development.

Creation, Fall, and Sabbath

The focus in this session was on interpretation of biblical material and relationships between their theology and scientific knowledge.

A traditional western view about early Genesis saw an initially perfect creation followed by a ruinous fall. In "Biblical Goodness and the Perfection Myth: The Importance of the Genesis Narrative in Light of Scientific and Philosophical Perspectives," Craig Boyd called this a "myth in the common sense of [the] term" which is "detrimental" to our understanding of creation. He held that the perfection idea originated with Augustine and traced its historical influence. Boyd argued for the goodness but not perfection of creation and suggested that this helps us to understand why human care for creation is needed. In addition, it changes the terms of the perennial problem of evil and is important in meeting atheist challenges to Christianity.

Dennis Lamoureux's "The Fall and Natural Evil: Revisiting the Hermeneutics and Historicity of Genesis 3," challenged the second feature of the tradition, the cosmic fall. Dramatizing his talk with a cast of a saber-toothed tiger's "saber," he pointed out that predation and natural evil were in the world long before humanity appeared. Thus the interpretation that Paul gave to Genesis 3 cannot be understood as being based on actual historical events.

Furthermore, attempts to understand Paul's arguments as referring to "spiritual death" do not respect the intention of biblical authors. In inspiring the biblical texts, the Holy Spirit operated within the framework of an ancient mindset. Lamoureux argued that if we recognize this, we can see how the Genesis texts tell of an "ontologically 'very good'" creation which is at the same time "phenomenologically 'sub-

jected to frustration, groaning and bonded to decay.”

Moving from specific biblical texts to the interaction of systematic theology with science, David Watts spoke about “Absolute and Mediate ‘Divine Creation’ in Cosmological Discussion.” He argued that it is vital to distinguish between “absolute creation,” *creatio ex nihilo*, and “mediate creation” which is “divine agency transforming pre-existing matter/energy.” Since the former takes place from beyond the universe, it cannot be encompassed by scientific theories. Cosmological theories or those of biological evolution may involve creation in the mediate sense, but it should be understood that “*absolute* creation underpins all existence.”

Finally **Hedrick Edwards** dealt with a sometimes neglected aspect of creation in “Biblical Sabbath—Original Paradigm of Bio-History: A Model Critique of Humanistic Naturalism.” The Sabbath, he suggested, affirms creation past by denying that the world is self-created, creation present by witnessing to God’s defense of the world, and creation future as a “harbinger of hope.” The Sabbath, Edwards argued, relieves us of anxiety and discourages the “speculative rationalism” of some scientific theories such as “Darwinian naturalism.” ✉ **George L. Murphy**

Darwin, Evolution, and God

The three papers in this session continued the debate on evolution. Jim Hofmann of Cal State University, Fullerton, titled his talk “The Law of Higgledy-Piggledy Revisited: Contingency and Supernatural Design,” referring to John Herschel’s initial dismissive reaction in 1859 to Darwin’s idea of natural selection. Jim went on to focus on the role of “chance” in natural processes. The perception of the mutually exclusive role of “chance” and supernatural providence is the basis of much controversy today. Careful considerations of the nuances of contingency and design help to show that these concepts are not contradictory.

Mark Kalthoff of the history department at Hillsdale College, spoke on “Optimistic Evolutionists: The Pro-

gressive Science and Religion of Joseph LeConte, Henry Ward Beecher, and Lyman Abbott.” These three Christian writers in the 1880s and 1890s considered reformulating traditional Christian doctrine in the context of evolution, including the fundamental issues of the problem of evil and the concept of design. These issues are of vital interest today. These debates could benefit from the valuable perspectives of these nineteenth century thinkers.

Two additional papers covered other areas of considerable interest. **Edwin Yamauchi** addressed “Africa, India and Russia: Biblical Misinterpretations.” He cited numerous examples of misinterpretations of geographical terms in the Bible which in some cases have had political consequences. **Donald Petcher** of the physics department at Covenant College, spoke on the demarcation problem of science. Much of the discussion about whether intelligent design is science makes sense only if there is a widely agreed upon definition of science. He presented another perspective, referred to as “Mere Science,” which can shed light on these controversies by placing science in its appropriate role.

Designer Genes? Evolution, Genetics and Intelligent Design

Darwin pondered that if the eye could not be explained by natural selection, his theory would be declared false. Two views attempt to explain eye evolution: (1) a single origin of eye-forming genes with subsequent divergence to form camera-type and compound eyes, or (2) multiple origins from many genes providing a framework that allowed convergence on a few basic eye types.

Calling his talk, “Evolution: Do the Eyes Have It?” **Stephen Reinbold** of Metropolitan City College, Kansas City, MO, said many animals have opsin-coding genes and genes capable of forming rudimentary eyes. Genes that don’t ordinarily build eyes could be recruited for that purpose.

Intelligent Design proponents believe such adaptation hasn’t been demonstrated. Do the “eyes” have it on the

proposition of evolution by natural selection? Reinbold concluded, “Surely on the anatomical level, Darwin has been vindicated, but on the cellular level many questions remain and proponents of Intelligent Design can still be expected to say nay.”

University of Wisconsin chemist **Craig Rusbult** agreed that many features can be interpreted more than one way. Speaking of “Appropriate Humility about Evolution,” he said, “In science and theology, our humility should be appropriate—not too little and not too much. We can make some claims, but not others, with confidence.”

For example, is the universe’s fine-tuning due to design and/or a multiverse? Is nature 100% self-assembling, or—if nature cannot have both self-assembly and optimal operation, and God wants optimal operation—was miraculous-appearing divine action occasionally required? Currently, we cannot know with confidence.

Does “natural” mean “happening without God”? Although each of us can argue for our favorite view of creation, would it be appropriate to humbly acknowledge that “however God created, he is worthy of our praise”? Rusbult examines a range of questions at www.asa3.org/ASA/education/asa2007.htm

Environmental Stewardship: A Robust and Dynamic Praxis of Planet Care

Our environmental stewardship session flowed nicely from the plenary on Planet Care. It moved forward to find how, as Spirit-led and biblically grounded scientists, we are inspired to be responsible stewards of God’s creation (**Michelle Haynes**). We discovered that ours must be a robust stewardship applied to all we hold in trust, and also our empowering others, churches, and institutions in their stewardship development.

This robust stewardship, motivated by a Creation Care imperative, moves us with diligence and resolve to safeguard and restore the dynamic integrity of whole ecosystems. It not only must be applied to obvious and immediate

parts of our world, but with equal vigor and resolve to whole ecosystems to restore and sustain their capacity to respond to dynamic regional and global change (Les Batty). And, as our stewardship includes our homes, families, communities, and local environments, it also must be stewardship of the entire biosphere; not just the parts we find most convenient or attractive (David Campbell).

As we listened and discussed our findings, we discovered the need for a *refreshed and renewed* dynamic stewardship—a renewed vision of ecological restoration and protection, and “a renewed vision of agriculture” (Uko Zylstra).

In our time, all must be engaged in a robust stewardship of creation—this is the new frontier of our living out God’s will. ☒ *Cal DeWitt*

Religion and the Rise of Modern Science

Lydia Jaeger came from France to present “The Creation of Matter and the Modern Sciences.” She pointed out that the Christian doctrine of creation *ex nihilo* led the Church fathers to reject the idea of a demiurge imparting form to pre-existing matter. Belief in creation implied that contingency is not the result of an imperfect formation process, but of the free will of the omnipotent Creator.

Consequences of this changed vision were (a) the importance of experiments, (b) the integration of historical processes, (c) the possibility of exact mathematical science, and (d) as the material world is created by God, it is open to exact scientific enquiry.

Wheaton physics prof. **Joe Spradley** picked up the thread in “Christian Roots of the Scientific Revolution.” Concepts inherited from ancient Greece—deification of the heavens, a dichotomy between the heavens and the earth, and lack of empirical emphasis—hindered scientific progress. Christian contributions include ideas related to inertia, gravity, the physical nature of the heavens, and the importance of empirical evidence—all influencing Galileo and others in establishing the scientific

revolution. An emphasis on Christ’s humanity contributed to a new appreciation of the reality and importance of the material world.

Newly elected ASA Fellow and Union University prof. **Harry Lee Poe** concluded the session with “The Reformation and the Rise of Modern Science.” Alfred North Whitehead recognized that the Christian worldview contributed greatly to modern science emerging in the West, but thought Protestantism played no significant part. Poe argued that the reformers’ rejecting tradition in favor of examining the biblical text was precisely the method adapted by Francis Bacon to examine creation, to go to the primary data of the physical world.

Science and Religion in the Seventeenth Century

Australian **Larissa Johnson** took a fresh look at historical traditions of natural theology. Many Christians are skeptical of natural theology as a failed attempt to find God without revelation, leading some to reject Scripture. Taking a different angle, she demonstrated with examples of John Wilkins and John Ray that natural theology was also used as an apologetic for doctrines derived from revelation.

David Tyler of Whitegates Cottage in the UK, discussed the historical concept of complementarity in the context of the two-book model. Francis Bacon, he argued, derived his views from Aquinas where the sacred could be distinguished from the secular. Without a complementary perspective, this compartmentalization of knowledge may have led to secularism entering Christian theology.

Jason Rampelt of the Faraday Institute explored the life of John Wallis. He showed how Wallis was able to mediate the competing views of Aristotle with the newest experimental methods and mechanical views of the world. Wallis’s success in bridging opposing sides in science and theology is a model for Christians to emulate today.

Visit www.asa3.org to view this issue with color photographs.

Theology and Modern Science

John Baldwin discussed Langdon Gilkey’s hermeneutical response to the natural sciences. To encapsulate Gilkey’s approach, Baldwin coins the term “category translation,” which is shorthand for Gilkey’s acceptance of the non-historicity of early biblical narrative in view of modern science.

Arie Leegwater brought us into the interesting life of Charles Coulson, a 20th-century English chemist and evangelical Christian. Coulson clearly held to a unity in his faith, his science, and his life in general.

George Murphy dwelt on the important theme that (in my words) creation and redemption (“the theology of the cross”) are all of a piece, a theme from his recent book, *The Cosmos in the Light of the Cross*. As Murphy points out, this is actually an ancient idea, citing Athanasius’s referral to the Word both in creation and in redemption. Indeed, the saving work of Christ is the heart of the Christian message, but it has come under attack recently in the face of science. In order to understand the robustness of the connection with creation, we need to understand all the ancient themes of creation in relation to their redemptive counterparts.

☒ *Donald N. Petcher*



Poster Session

Poster sessions are growing in popularity at ASA meetings, due to the greater degree of interaction. A dozen posters at this meeting covered topics from beauty in science and spirit to a scientific study of character development to implications of human uniqueness and many others. Abstracts of the posters are published in the program (see box on p. 1 for web address).

ASAer on Mission

Ted Davis has been invited to teach a two-week course on “Religion and the Rise of Modern Science” in late October and early November, at Wuhan University in central China. This is part of an initiative sponsored by the Society of Christian Philosophers and funded by the John Templeton Foundation.



In the John McIntyre refectory, breakfast included a choice from all the usual fare, as well as blood pudding, kippers, and traditional or vegetarian haggis.

Coming Events

- Sept. 22–23.** Intelligent Design/Evolution Seminar, Grace Bible Church, Canal Winchester, OH. 9:50–3:30 Saturday and 10–12 Sunday. Speakers: C. S. Lewis Society director **Tom Woodward** and Normandy Woodward. Also featuring “The Case for a Creator,” a video with Lee Strobel. Information at www.gracebiblecw.com or BOBGARBE@aol.com or info@apologetics.org.
- Oct. 1.** “Philosophy and Science: Contemporary Explorations,” Duke U., Durham, NC.
- Oct. 3.** ASA Chicago area group, Cress Creek, 1215 Royal St. George Dr., Naperville, IL. Meal & meeting 6:30. Speaker: **Ray Brand**, reviewing **Francis Collins’** book, *The Language of God*, followed by a round-table discussion of Frank Tipler’s provocative new book, *The Physics of Christianity*. A light meal will be served at a nominal charge of \$10 (chicken or salad with a cash bar). RSVP **James Baird** at Drjamesdbaird@aol.com.
- Oct. 11.** “Poison or Cure? Religious Beliefs in the Modern World,” Ethics & Public Policy Center, Georgetown U., Washington, DC, 5:30–7:00. Speakers: Alister McGrath debates Christopher Hitchens over the future of religion. Information and registration at www.eppc.org/conferences.
- Oct. 13.** Reasons to Believe, Chicago chapter, 2:00–3:30. Speaker: Jim Virkler, topic: Naturalism. Revised location information available from Chicago@reasons.org.
- Oct. 31–Nov. 3.** Geological Society of America meeting in Denver. The Affiliation of Christian Geologists will be having a get together sometime during that time.



On Sunday morning, two talented local musicians accompanied us at a worship service led by Paul Wraight. Rev. Colin Sinclair from Palmerston Place Church preached.



Some attendees enjoyed the beautiful Scotland weather as they conversed with others while sipping their tea or coffee and eating their biscuits.

Congratulations, Long-time ASAers!

Celebrating 45 years of membership

Daniel Andersen
Ronald L. Barndt
C. Henry Bradley
George Giacomakis, Jr.
Kenneth B. Hoover
Martin M. LaBar
John M. Miller
Donald W. Munro
Eduard H. Schludermann
Jack N. Sparks
William H. Venable
C. Richard Terman
Kenneth J. Van Dellen
Merville O. Vincent
Leland H. Williams



ASAers and CiSers enjoy a Ceilidh, Scottish dances and reels to the music of guitars, fiddle, and drums, led by a kilted master of ceremonies.

Photo Acknowledgments

We thank Wikipedia (page 1, McGrath); **Paul Carr** (page 3, Houghton and page 10, poster); and **Dave Fisher** (all of the other photos).

A Pastor Provides Perspective

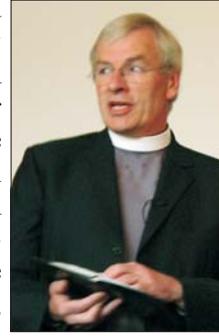
Edinburgh pastor Colin Sinclair spoke Sunday morning on Philippians 1. Noting that it was written while Paul was in prison, he emphasized Paul's constructive attitude: "What has happened to me has really served to advance the gospel."

Some facets of Paul's experience are comparable to our experiences. He had been the victim of a mob riot, ... a snake bite and house arrest. Rev. Sinclair speculated that perhaps the Philipians had expected Paul to say, "My friends, do you know what it's like to have a chain on your wrists the whole time—having a guard with you every moment?"

Initiating a Chain Reaction

But if Christ is Lord, it reverses our thinking. Instead of looking at the chain that held his wrists and saying, "Poor me, I'm chained," perhaps he said, "Poor Roman soldier, he's chained to me." He got what every preacher wants: a captive audience.

The Roman guard was changed every two hours, and Paul had these guards for two years. Do the math, and "even for a Presbyterian that's quite a congregation. While he was in chains, he set off a chain reaction. ... When all the temptation would be to despair and to self-pity, he continued to witness for Christ. And those who were free were challenged."



Rev. Colin Sinclair

Rev. Sinclair continued, "I would suspect that in your work and in your life ... you have chains ... that frustrate you—financial chains, relationship strains, personal chains. You think, 'If only I were free of these, what I would do for Christ!' ... And when we start saying, 'It's not fair,' we're effectively saying, 'Jesus Christ is not Lord.' ...

We can't control our circumstances, but we can control our response to them ... to look for the opportunities they present, rather than add up the liabilities."

Filling the Blank

"What calls us on that journey is what fundamentally at the end we believe in. ... Question one is 'For me to live is ___' Question two is, 'What happens to the answer to question one when you die?' For me to live is money; to die is to leave it behind. For me to live is fame; to die is to be a footnote in an obscure scientific research article that no one reads ..."

"For me, to live is Christ."

He concluded, "Dealing with the huge issues of our world today..., ethical issues, medical issues, scientific issues ... don't forget that Jesus Christ is over all your life. For if he is not, it will touch and taint every part of your life. ... Paul said let Christ be Lord of your attitudes, and then take your agenda and your ambitions and consecrate them to Christ—for his glory and for a needy world. Amen."

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