



FROM COSMOS TO *PSYCHE*

“All things hold together in Christ”
Colossians 1:17



ASA CSCA CiS

2014

ANNUAL MEETING

July **25** ▶ **28** 2014
FRIDAY MONDAY



McMaster
University



1280 MAIN STREET WEST
HAMILTON, ONTARIO CANADA

*Programme
Booklet*

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GENERAL INFORMATION

ASA/CSCA/CiS Exhibit Room and Book Room

We are pleased to welcome the following exhibitors to our meeting: A Rocha Canada, AAAS, ASA, BioLogos, CiS, CSCA, Christian Studies International, Hamilton Area Science and Religion Forum, InterVarsity Christian Fellowship, Reasons to Believe, and The Faraday Institute. They are located in room 1115 of the Michael DeGroot Learning Centre (MDLC).

We thank Jackie Childerhose of Grand River Spiritual and Educational Resources for providing the book service for us. Book tables featuring books of interest to attendees are in room 1116, MDLC.

Exhibit Room and Book Room hours are as follows:

Saturday: 9:00 AM – 5:00 PM
Sunday: 10:30 AM – 5:00 PM
Monday: 9:00 AM – 12:00 PM

Campus ATM Machine

There is one located in the Commons Building lobby.

Plenary Sessions

All plenary sessions will be held in the Michael DeGroot Learning Centre (MDLC), room 1307.

Friday: 7:15 PM Megan Best, “Brave New World”
Saturday: 8:45 AM Don Page, “The Optimal Argument for the Existence of God”
7:15 PM Barth Netterfield, “Astrophysics: The Heavens Declare the Glory of God”
Sunday: 11:00 AM Alasdair Coles, “Broken Brains and Christ: What We Can Learn about Faith from People with Neurological Diseases”
Monday: 8:45 AM Jeffrey Schloss, “Evolution, Moral Cognition, and the Question of Human Exceptionalism”

Special Events

Friday: 8:30 AM Workshop 1: Origins Today: Genesis through Ancient Eyes
8:30 AM Workshop 2: Progress and Challenges in Understanding Life’s Origins
8:30 PM Fellowship Mixer
Saturday: 12:00 PM CWIS Hike and Picnic Box Lunch
6:00 PM Banquet
8:30 PM CSCA Annual Meeting
9:00 PM Student and Early Career Session: Meet the Plenary Speakers
Sunday: 9:30 AM Worship Service
6:30 PM ASA Business Meeting
7:30 PM Communications Meeting
8:30 PM Christian Women in Science—open meeting
9:00 PM Christian Women in Science Board Meeting

Many thanks to ...

Program Chair **Robert Mann** and Local Arrangements Chair **Robert Geddes** for their countless hours of preparation. We are especially thankful for the **donors** who contributed to the Students and Early Career Scientists’ Scholarship Fund.

The ASA/CSCA/CiS Spirit

The ASA, CSCA, and CiS encourage thoughtful and provocative scientific presentations and discussions. Presenters and discussants are expected to maintain a humble and loving attitude toward individuals who have a different opinion.

2014 ASA/CSCA/CIS ANNUAL MEETING PRE-MEETING ACTIVITIES

WEDNESDAY, 23 JULY 2014

4:00 PM	Les Prince Residence Hall check in opens at the Commons Building
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THURSDAY, 24 JULY 2014

3:00 PM	Meeting Registration opens, Commons Building
4:00 PM	Les Prince Residence Hall check in opens at the Commons Building
5:00 PM	Dinner, Commons Building
9:30 PM	Meeting Registration closes, Commons Building

FRIDAY, 25 JULY 2014

7:00 AM	Breakfast, Commons Building
8:00 AM	Meeting Registration opens, MDCL Foyer
8:30 AM	Workshop 1, MDCL 1009: John Walton , leader; Origins Today: Genesis through Ancient Eyes
8:30 AM	Workshop 2, MDCL 1010: Stephen Freeland , leader; Progress and Challenges in Understanding Life's Origins
8:30 AM	Field Trip: Niagara Falls, depart from the front of Les Prince Residence Hall
8:30 AM	Field Trip: Geology of the Niagara Escarpment and Gorge, depart from the front of Les Prince Residence Hall
8:30 AM	Field Trip: Royal Botanical Gardens, depart from the front of Les Prince Residence Hall
12:00 PM	Lunch, Commons Building
1:30 PM	Field Trip: McMaster Campus Tour, depart from the front of Les Prince Residence Hall

2014 ASA/CSCA/CIS ANNUAL MEETING

FRIDAY, 25 JULY 2014

4:00 PM	Les Prince Residence Hall check in opens at the Commons Building
5:00 PM	Dinner, Commons Building
7:00 PM	Welcome, Introductions, MDCL 1307 <ul style="list-style-type: none"> • Randy Isaac, ASA Executive Director • Robert Geddes, Local Arrangements Chair • Robert Mann, Program Chair
7:15 PM	Plenary I, MDCL 1307 (9) Moderator: Robert Mann Megan Best , "Brave New World"
8:30 PM	Mixer, MDCL Southeast Foyer
9:00 PM	Meeting Registration closes, MDCL Foyer

* Abstract(s) for session are found on the page number(s) in parentheses after the room location.

SATURDAY, 26 JULY 2014

7:00 AM	Breakfast, Commons Building			
8:15 AM	Meeting Registration opens, MDCL Foyer			
8:15 AM	Devotions, MDCL 1307 Music Leader: Wendy Porter , Director of Music and Worship, McMaster Divinity College Devotional: Glenn Marsch			
8:45 AM	Plenary II, MDCL 1307 (9) Moderator: Arnold Sikkema Don N Page , "The Optimal Argument for the Existence of God"			
9:00 AM	Exhibit Room, MDCL 1115; Book Room, MDCL 1116, open			
9:45 AM	Beverage Break, MDCL Southeast Foyer			
10:00 AM	Les Prince Residence Hall check out, Commons Building			
10:15–11:45 AM	I.A, Physical Science-1: Cosmology and Theology –MDCL 1307 (20–21) Moderator: Colin Humphreys	I.B, Life Science-1: Biology –MDCL 1309 (16–17) Moderator: Patricia Fitzgerald-Bocarsly	I.C, Environment-1: Protecting God’s Creation –MDCL 1110 (13–14) Moderator: Donald Morton	I.D, Science/Theology-1: Worldviews of Creation –MDCL 1009 (25) Moderator: Deborah Haarsma
10:15 AM	Peter J Bussey "The Beginning of the Universe"	Patricia Fitzgerald-Bocarsly "TOLL and TOLL-like Receptors from Drosophila to Humans: The Bell Tolls for All"	Darren Brouwer "Transformative Experiences of Creation Care"	Dennis Danielson "Galileo, Cosmological Mutability, and Its Theological Implications"
10:30 AM			Sharon Petzinger "Guiding the Stewardship of God’s Creation: An Example from the Most Densely Populated State in the USA"	
10:45 AM	Elliot Nelson "Is the Observable Universe a Biased Sample?"	Linda Y Lu "Antioxidant Induces DNA Damage, Cell Death and Mutagenicity in Human Lung and Skin Normal Cells"	Robert D Sluka "The Hidden Things of God in the Ocean"	Ide Trotter "Texas Biology Textbook Smack Down"
11:00 AM	Gladys Kober "High School Curriculum— 'The Crossroads of Science and Faith: Astronomy with a Christian Worldview'"	Hannah Ryan "Mutational Studies of Yeast Hexokinase Isozymes"	David L Dornbos Jr "Food System Reform Consistent with Christian Stewardship Could Drive Improved Ecological Health and Sustainable Healthcare"	Alan Dickin "Time to Abandon Aristotelian Approaches to Genesis?"
11:15 AM	Panel Discussion "Our Universe: From Nothing? Unique? Fine-tuned? Designed? Created?" Panelists: Peter Bussey Robert Mann Don Page David Wilkinson	Jan Frederic Dudd "Teaching Evolution from a Christian Perspective at Grove City College"	David R Clements "Publishing in Creation with Illustrations from Garry Oak Ecosystem Restoration in the Pacific Northwest"	Doug Hayhoe "Creation as Gift Event: A New Perspective for Evangelicals?"
11:30 AM		John Korstad "Developing an Interdisciplinary Course on Global Development and Sustainability"		
12:00 PM	Lunch, Commons Building			
12:00 PM	Christian Women in Science (ASA Affiliate) Hike and Picnic Box Lunch—All women invited, but box lunch must be pre-ordered with meeting registration.			

1:30–3:00 PM	II.A, Physical Science-2: Physics, Scripture, and Theology –MDCL 1307 (21–22) Moderator: Peter Bussey	II.B, Sci/Tech-Service-1: Technologies to Improve Quality of Life –MDCL 1309 (23–24) Moderator: Mike Clifford	II.C, Environment-2: Dealing with Climate Change –MDCL 1110 (14–16) Moderator: Donald Morton	II.D, Science/Theology-2: Attitudes toward Evolution –MDCL 1009 (25–26) Moderator: David Chettle
1:30 PM	Colin Humphreys “Evidence for God from Some Crucifixion Events”	Emily Ruppel “Is Success a Technicality? Suggestions from Two Case Studies in Experimental Hand Transplantation”	Charles E Chaffey “Brother Marie-Victorin: Christian Advocate for the Environment in French Canada”	Deborah Haarsma “What Americans Think and Feel about Evolution”
1:45 PM			Tim Middleton “Earthquakes and Evil: Developing a Theology of Natural Disasters”	
2:00 PM	C M B Biggs “The God of Samson—or Delilah?”	William Jordan “Banana Plants: Using Waste to Clean Water”	Johnny Wei-Bing Lin “Climate Change and Christian Stewardship: Toward an Alternative Framework for Understanding Questions of Creation Care”	Paul Arveson “The AAAS DoSER-Rice University Evangelical Perceptions Project”
2:15 PM	David Robbins “Noah and the Voice of Science”	Walter L Bradley “Lessons Learned in Helping Poor Using Agricultural Waste: The Case of the Coconut”	Katharine Hayhoe “Christians, Climate Change, and Our Culture”	
2:30 PM	Hugh Ross “Constructive Integration of Science and Scripture”	James Rynd “Teaching College-Level Science in West Africa”	Terry M Gray “The Problem of CO ₂ and Solutions from the World of Chemistry”	David Wilkinson “Attitudes to Science and Faith among UK Senior Christian Leaders”
2:45 PM			Glenn A Marsch “Should We Split Atoms or Carbon-Carbon Bonds: Some Considerations from Biophysics, Toxicology and Environmental Stewardship”	Christopher M Rios “Against the Tide: The 20th-Century Struggle for an Evolutionary View of Creation”
3:00 PM	Refreshment Break, MDCL Southeast Foyer			
3:30–5:00PM	III.A, CWIS: Christian Women in Science –MDCL 1307 (11) Moderator: Gayle Ermer	III.B, Mind Science-1: Self-Understanding –MDCL 1309 (19) Moderator: Heather Looy	III.C, Environment-3: Dealing with Climate Change –MDCL 1110 (16) Moderator: Charles Chaffey	III.D, Emergence-1: Life and Information –MDCL 1009 (11–12) Moderator: Arnold Sikkema
3:30 PM	Lynn Billman “The Birth and Progress of ‘Christian Women in Science,’ An Affiliate of the American Scientific Affiliation”	Thom Black “Paul the Apostle, Neuroplasticity, and the Renewal of the Mind”	Kenell J Touryan “Natural Gas and Renewable Energy: Competition or Synergism?”	Phyllida Drummond “Emergence and the Property of Life”
4:00 PM	Gayle E Ermer “A Christian Response to Under-Representation of Women in Engineering Degree Programs”	David L Wilcox “Evolving toward the Fall: Neuroplasticity and Original Sin”	Donald C Morton “Climate Science and the Dilemma for Christians”	Robert J Marks II “Functional Information and the Intelligent Design-Theistic Evolution Dialogue”
4:15 PM			General Discussion	
4:30 PM	E Janet Warren “Feminine Sin and Female Scientists”			Randy Isaac “Generating New Functional Information”
5:00 PM	Exhibit Room, MDCL 1115; Book Room, MDCL 1116, close			

5:00 PM	Meeting Registration closes, MDCL Foyer
5:45 PM	Seating for Banquet, CIBC Hall (MUSC)
6:00 PM	Banquet, CIBC Hall (MUSC)
7:15 PM	Plenary III, CIBC Hall (MUSC) (9) Moderator: Colin Humphreys Barth Netterfield , "Astrophysics: The Heavens Declare the Glory of God"
8:30 PM	CSCA Annual Meeting, CIBC Hall (MUSC)
9:00 PM	Student and Early Career Session: Meet the Plenary Speakers, CIBC Hall (MUSC)

SUNDAY, 27 JULY 2014

8:00 AM	Breakfast, Commons Building			
9:30 AM	Worship, MDCL 1307 Music Leader: Wendy Porter , Director of Music and Worship, McMaster Divinity College Worship Leaders: Members of the CSCA Executive Council Minister: Rev Dr John Bowen , Director of the Institute of Evangelism, Wycliffe College			
10:00 AM	Les Prince Residence Hall check out, Commons Building			
10:30 AM	Meeting Registration opens, MDCL Foyer			
10:30 AM	Exhibit Room, MDCL 1115; Book Room, MDCL 1116, open			
10:30 AM	Beverage Break, MDCL Southeast Foyer			
11:00 AM	Plenary IV, MDCL 1307 (10) Moderator: Heather Looy Alasdair Coles , "Broken Brains and Christ: What We Can Learn about Faith from People with Neurological Diseases"			
12:00 PM	Lunch, Commons Building			
1:30–3:00 PM	IV.A, Physical Science-3: Frontiers of Physics and Astronomy –MDCL 1307 (22) Moderator: Colin Humphreys	IV.B, Life Science-2: Evolution/Death –MDCL 1309 (17–18) Moderator: Patricia Fitzgerald-Bocarsly	IV.C, Mind Science-2: Evolutionary Psychology –MDCL 1110 (19–20) Moderator: Heather Looy	IV.D, Emergence-2: Emergence and Theology –MDCL 1009 (12–13) Moderator: Arnold Sikkema
1:30 PM	David Wilkinson "Exoplanets, Creation and Incarnation: Christian Faith Engaging with SETI"	Denis O Lamoureux "Original Sin Revisited: An Inevitable Theological Paradigm Shift?"	Loren Haarsma "From Psyche to Sin and Redemption"	Jamin Hübner "Case Studies in Emergence: Bridging the Gap between Science and Theology"
2:00 PM	Robert Mann "Physics at the Theological Frontier"	Bethany Sollereider "Nonhuman Animal Suffering and the Christ Who Holds All Things Together"	Alfred Latham "The Ethics of Justice and of the Atonement"	Paul H Carr "Did Consciousness Emerge from Cosmos or Visa-Versa?"
2:30 PM	Qing-Bin Lu "Global Climate Change and Ozone Depletion: Understanding from a Christian Physicist"	Paul Fayter "Combating the Cosmos without Christ: Thomas Henry Huxley's Conflicted Case against Evolutionary Ethics"	Chris Barrigar "The Problem of Altruism: Evolutionary Sciences and Neuroscience Versus Social Psychology and Theology"	David C Winyard Sr "A Technological God? The Emergence of Religious Transhumanism"
3:00 PM	Refreshment Break, MDCL Southeast Foyer			

SUNDAY, 27 JULY 2014

3:30–5:00 PM	V.A, Science/Theology-3: Theology and Science –MDCL 1307 (26–27) Moderator: David Wilkinson	V.B, Life Science-3: Bioethics –MDCL 1309 (18–19) Moderator: Patricia Fitzgerald-Bocarsly	V.C, Mind Science-3: How Modern Science Affects Us Psychologically –MDCL 1110 (20) Moderator: Heather Looy	V.D, Emergence-3: Science, Theology, and Philosophy –MDCL 1009 (13) Moderator: Arnold Sikkema
3:30 PM	Keith Miller “Doubt in Science and Faith”	Uko Zylstra “Genetic Manipulation and Patenting of Genes and GMOs”	Heather Looy “Strangers in Our Own House: Psychological Consequences of Our Alienation from Creation”	Tom Woolley “The Distribution of Life: Is Evolution ‘Predictable?’”
4:00 PM	Hugh Reynolds “Signs and Wonders in the Bible—What Is Their Purpose?”	D Gareth Jones “Why Do Christians Find the Artificial Reproductive Technologies So Challenging?”	Scott Bonham “Pursuing Truth through a Social Constructivist Framework”	Harry Cook, Arnold E Sikkema, Jitse M van der Meer Initial presentations by panelists that will precede a Panel Discussion, which will be followed by a general discussion on emergence
4:15 PM	Maria A Hernandez “Holding the Healthcare Giant in Christ”			
4:30 PM				
4:45 PM		James Johansen “Information in Genomes: Scientific, Theological, and Ontological Perspectives”		
5:00 PM	Exhibit Room, MDCL 1115; Book Room, MDCL 1116, close			
5:00 PM	Meeting Registration closes, MDCL Foyer			
5:15 PM	Dinner, Commons Building			
6:30 PM	ASA Business Meeting, MDCL 1307			
7:30 PM	Communications Meeting, MDCL 1307			
8:30 PM	Christian Women in Science, MDCL TBA—Open meeting, 8:30–9:00 PM; come offer your comments. Closed CWIS Board meeting, 9:00–10:00 PM			

MONDAY, 28 JULY 2014

7:00 AM	Breakfast, Commons Building			
8:15 AM	Meeting Registration opens, MDCL Foyer			
8:15 AM	Devotions, MDCL 1307 Music Leader: Wendy Porter , Director of Music and Worship, McMaster Divinity College Devotional: Janet Warren			
8:45 AM	Plenary V, MDCL 1307 (10) Moderator: Patricia Fitzgerald-Bocarsly Jeffrey P Schloss , "Evolution, Moral Cognition, and the Question of Human Exceptionalism"			
9:00 AM	Exhibit Room, MDCL 1115; Book Room, MDCL 1116, open			
9:45 AM	Beverage Break, MDCL Southeast Foyer			
10:00 AM	Les Prince Residence Hall check-out, Commons Building			
10:15–11:45 AM VI.D ends at Noon	VI.A, Physical Science-4: The Laws of Physics –MDCL 1307 (22–23) Moderator: Colin Humphreys	VI.B, Sci/Tech Service-2: Energy –MDCL 1309 (24) Moderator: Mike Clifford	VI.C, Science/Theology-4: Philosophy and Science –MDCL 1110 (27) Moderator: Dennis Danielson	VI.D, Academy Regained: Natural Sciences –MDCL 1009 (28) Moderator: Russell Kosits
10:15 AM	Matthew Huddleston "A Superposition of Quantum Controversy: The Ongoing Debate over What Aspects of Quantum Mechanics Are Controversial"	David Larrabee "Personal Lifestyle Implications of a Globally Just and Sustainable Future"	Christopher Waks "A New Eclipse of the Biblical Narrative: Biblical Interpretation in Scientific Thinking"	David T Koyzis, Russell D Kosits Introductory Comments by Programme Chairs
10:30 AM				Kevin Vander Meulen "A Neo-Kuyperian Approach to Mathematics"
10:45 AM	G Wayne Brodland "The Trouble with Models"	Bruce Beaver "Would God Frack?"	Daniel W Rüdissill "'Loving Wisdom': Philosophy as <i>Philosophia</i> "	
11:00 AM				Derek Schuurman, Steve Vander Leest "Exploring a Biblical Perspective of Engineering"
11:15 AM	Greg Voth "What Violations of the Known Laws of Physics Do You Expect?"	Mike Clifford "Cookery Lessons: An Engineer's Observations on the Role of Participation in the Uptake of Improved Cook Stoves in Sub-Saharan Africa"	Fr Hugh MacKenzie "Socrates' Helpful Diagnosis of His Creationist 'Preference' and Modern Science's Theistic Cure"	
11:30 AM				Arnold E Sikkema "Reformational Perspectives in Physical Science"
12:00 PM	Exhibit Room, MDCL 1115; Book Room, MDCL 1116, close			
12:00 PM	Meeting Registration closes, MDCL Foyer			
12:00 PM	Lunch, Commons Building			

2014 ASA/CSCA/CiS ANNUAL MEETING POST-MEETING ACADEMY REGAINED CONFERENCE AT REDEEMER COLLEGE

Separate registration required. See <http://goo.gl/a5crgc> for details.

Academy Regained: Social Sciences

2:00 PM	Vahagn Asatryan , "Exploring a Biblical Perspective of Marketing"
2:30 PM	Russell D Kosits, Eric L Johnson , "A Preliminary Rationale for Reformed and Reformational Perspective in Psychological Science"
3:00 PM	James R Vanderwoerd , "Toward a Biblical Grounding for Professional Social Work Practice"
3:30 PM	David T Koyzis , "Political Science Regained"
4:00 PM	Break

Academy Regained: Humanities

4:30 PM	Janet Danielson , "Music as Science and Art"
5:00 PM	Kevin Flatt , "What Does Kuyper Have to Do with Ranke and Foucault? A Reformational Perspective on the Discipline of History"
5:30 PM	Alissa Wilkinson , "Word and Flesh: Toward a Christian View of English Literature"
6:00 PM	James J Rusthoven , "Toward a Reformed Understanding of Biomedical Ethics"
6:30 PM	Dinner (with reflections from Al Wolters)
7:30 PM	Highlights from "Six Pieces of a Reverberant Cosmos" by Janet Danielson narrated by Dennis Danielson

PLENARY SESSIONS

Friday, 25 July 2014

7:15 PM

Brave New World Megan Best

The euthanasia debate never really goes away, but in the media it is usually argued in terms of a material world with the expectation that autonomy should be valued as the overriding ethical principle. Furthermore the terminology used by its supporters often clouds public understanding of what a change in the law to allow euthanasia would mean. However, research exploring the experience of patients at the end of life reveals a different attitude to physician-assisted dying and the importance of human spirituality in the face of death.

In this presentation I will unpack the current euthanasia debate, considering the role of modern palliative care and care of patients at the end of life. I will discuss the implications of my own research on spirituality and the nature of human suffering. Finally I will consider the ethical dilemma intrinsic to the euthanasia debate and explore a Christian response to community discussions.

Megan Best is a bioethicist and palliative care doctor who is employed by



HammondCare, a Christian healthcare provider in Sydney, Australia. She studied medicine at Newcastle University and

has degrees in theology, palliative care, research and ethics and is currently working on a PhD at the University of Sydney. Her thesis focuses on the spiritual needs of dying patients.

A lobbyist and a quiltmaker, her clinical focus is the development of a Palliative Care Day Clinic which aims to support terminally ill patients with advanced disease who wish to remain living at home. Megan has been a strong participant in the Centre for Apologetic Scholarship and Education (CASE) network as an associate and scholar.

She works as a member of the Faculty writing papers, delivering lectures and co-convenes the CASE medical ethics

conference. She is author of the books Fearfully and Wonderfully Made—Ethics and the Beginning of Human Life and A Life Already Started.

Saturday, 26 July 2014

8:45 AM

The Optimal Argument for the Existence of God Don N Page

We humans seek the simplest hypotheses that explain our observations. In the mathematical sciences, we seek the simplest mathematical theories consistent with our measurements. We have been successful in finding partial theories much simpler than they might have been, but so far they still have significant complexity. A simpler hypothesis might be that the world is the best possible, by which I mean that the total value of all conscious experiences is maximized. If our universe or multiverse were all that existed in the world, the sufferings experienced within it would seem to contradict the hypothesis that the world is the best possible. However, if a God exists who wants to create other conscious beings and who greatly values mathematical simplicity, then the total value of the world (that of both divine and creaturely conscious experiences) might indeed be maximized. Therefore, the hypothesis that the world is optimal (along with hypotheses about the nature of God were He to exist) might lead to the conclusion that God does exist.

Don Page is a Canadian theoretical physicist at the University of Alberta, Canada, whose work focuses on quantum cosmology and theoretical gravitational physics.



He received his BA at William Jewell College in the United States in 1971, attaining an MS in 1972 and a PhD in 1976 at Caltech. He followed this with a NATO Postdoctoral Fellowship in Science at Cambridge University under the supervision of Professor Stephen Hawking.

Don has recently made a number of contributions to the science/faith dialogue. He has been married to Catherine Hotke since 1986. They have five children.

Saturday, 26 July 2014

7:15 PM

Astrophysics: The Heavens Declare the Glory of God Barth Netterfield

Astrophysical research has produced a view of the Universe which is vast beyond comprehension, with a startlingly long but finite history. Much of the behaviour and history of the Universe is understandable, yet there remain profound mysteries, not the least of which is the impression that the Universe has been “fine tuned” for life. In this talk, with some focus on my own research and experiences, I will give a whirlwind tour of the Universe, as we are again reminded that “the heavens declare the glory of God.”

Calvin Barth Netterfield is a Canadian astrophysicist and a professor in the



Department of Astronomy and the Department of Physics at the University of Toronto.

He is a leading expert in developing

instrumentation to observe the cosmic microwave background (CMB) radiation, specializing in the development of balloon-borne telescopes. These are astrophysical experiments that are lifted into the stratosphere by high-altitude balloons where they conduct observations that would be hindered by atmospheric interference if done on the ground. He was a key member of the instrument team for BOOMERANG, the experiment that made one of the first accurate determinations of the age, geometry, and mass-energy content of the universe.

More recently, he has delved into the field of submillimetre astronomy and the physics of star formation through his involvement with the BLAST telescope. He was featured prominently in BLAST!, a documentary film about the 2005 and 2006 flights of BLAST from Sweden and Antarctica.

Sunday, 27 July 2014

11:00 AM

Broken Brains and Christ: What We Can Learn about Faith from People with Neurological Diseases

Alasdair Coles

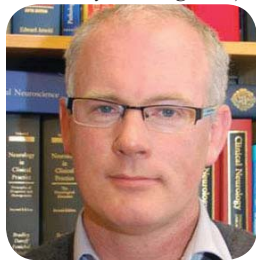
One of the most powerful techniques for understanding the neurological basis of any behaviour is to see how patients are affected by neurological diseases. For instance, most of what we know about the pathways of speech and language in humans comes from studying people who have had strokes or brain tumours affecting particular parts of the brain. This has allowed us to identify the components of language, so that we can now say that understanding language takes place in a different part of the brain from the area that assembles language into speech.

In the same way, we can study the effects of different neurological diseases on religious belief, experience and practice. In a small group of people with temporal lobe epilepsy, seizures are experienced as “mystical seizures”, which consist of many of the features of a normal numinous experience. Dostoyevsky, the great Russian novelist, has described these well in his book *The Idiot*. In Parkinson’s disease, there seems to be a general loss of will or appetite for religious practice, along with a loss of interest in usual hobbies. Those who have damage to the frontal lobes of the brain can experience a disruption of their normal beliefs and habits, including a diminished or increased interest in religious beliefs. People with high level autism may be unable to have a personal experience of God, because of their difficulty in understanding the thoughts and feelings of others.

This scientific approach to people with neurological diseases could leave the impression that damage to the brain diminishes faith. And yet many of our patients testified to increased dependence on their faith as their disease progresses. Religious faith can also provide meaning in a life of suffering.

From such work, it is clear that the brain is naturally disposed to experience the divine and to process religious beliefs and worship. However the reality of the Christian faith cannot be found by neurological study; that depends on external truth of whether or not Christ lived, died and resurrected. It is also clear that people may have different capacities to experience God and understand belief and worship. But we are all equally loved by God from that game equal dignity and value.

Rev Dr Alasdair Coles is a lecturer in neuroimmunology (study of the nervous and immune system together) at the University of Cambridge and is an honorary consultant neurologist to Addenbrooke’s and Peterborough Hospitals in the UK.



He is involved in research in new treatments for multiple sclerosis (a disease that causes damage to the nerves) and in the neurological basis for religious experience.

He was ordained in the Church of England in 2008 and is now an assistant minister at St Mary and St Michael’s Church, Cambridge, and chaplain to the staff at Addenbrooke’s Hospital, in addition to his medical and scientific work.

Alasdair is married to Olivia, and they have two young children.

Monday, 28 July 2014

8:45 AM

Evolution, Moral Cognition, and the Question of Human Exceptionalism

Jeffrey P Schloss

Our understanding of human morality constitutes one of the most profound implications of evolutionary theory, recognized immediately upon publication of *The Origin* even though Darwin had not yet mentioned the topic. Both critics and advocates of evolution—from Huxley to Wallace to Darwin himself—wrestled with three issues that continue to fuel vigorous debate. (1) Does natural selection provide a fully adequate explanation for the origin and operation of human moral cognition or central tendencies in moral beliefs? (2) Does common descent necessarily entail, or do comparative empirical observations substantiate, a rejection of human exceptionalism when it comes to moral capacities and morally salient behaviors? (3) Is an evolutionary account of morality incommensurate with the existence of universal and objective moral facts or our confidence that we can have knowledge of such facts?

This talk will review contemporary theoretical and empirical work on the evolution of morality, including recent

studies of the role of religion in moral belief and behavior. I will argue that although moral cognition bears the stamp of an evolutionary process, it is not (or not yet) fully accounted for by natural selection. Moreover, there are strong empirical grounds for affirming human uniqueness, while also rejecting the Gnostic construal of moral goodness as wholly disembodied. Finally, there are strictly biological reasons for questioning evolutionary arguments for moral relativism. On the other hand, “evolutionary debunking” arguments of moral knowledge constitute serious challenges—but only given prior commitment to materialism.

Jeffrey Schloss is Senior Scholar at the BioLogos Foundation and Distinguished Professor of Biology at Westmont College, Santa Barbara, CA, USA.



His research interests are in the evolution of altruism and moral systems and the theological implications of Darwinism.

He has been a Danforth Fellow, a Crosson Fellow at the University of Notre Dame’s Center for Philosophy of Religion, a Plummer Fellow at St. Anne’s College Oxford, a Witherspoon Fellow in Theology & Science at Princeton’s Center of Theological Inquiry.

Recent publications include The Believing Primate: Scientific, Philosophical, and Theological Reflections on the Origin of Religion (with Michael Murray).

CHRISTIAN WOMEN IN SCIENCE

Saturday, 26 July 2014

3:30 PM

The Birth and Progress of "Christian Women in Science," An Affiliate of the American Scientific Affiliation

Lynn Billman

Are you a scientist, mathematician, engineer, or technology geek? You may experience intense competition and scarce funding. If, additionally, you are female you have fewer role models and different biological and social needs than your male colleagues. If, on top of all that, you are openly Christian, likely you have experienced the denigration of your work and/or your commitment to church and Jesus. The passions of science, faith, and womanhood can bring isolation. Women in medical and dental careers have an organization to support them, but there is no such organization for women in physics, plant genetics, or science education.

These observations led to the foundation of Christian Women in Science at the 2013 ASA Annual Meeting. I will provide an up-date on what's been happening since then and will summarize the attention paid to STEM education in headlines, identify new initiatives across the US, and document the percentage of women in STEM careers, especially in senior positions.

Saturday, 26 July 2014

4:00 PM

A Christian Response to Under-Representation of Women in Engineering Degree Programs

Gayle E Ermer

This presentation will consider issues of enrollment and retention of women in engineering programs. While the participation of women in many professional disciplines has substantially increased over the last 20 years, the participation of women in engineering degree programs has remained low. This is true in colleges and universities across the US, and particularly in Christian colleges and universities. An analysis of current enrollment and graduation rates for women in various engineering fields, both overall and for different sets of educational institutions, will be included to clarify the dimensions of the problem.

Many reasons for the under-representation of women in engineering have been proposed. In order to evaluate some of these perceived barriers to women pursuing

engineering study, the results of a retention study of women in an engineering program at a particular Christian college will be presented, along with some of the efforts this institution has undertaken to increase the recruitment and retention of women engineering students. The presentation will conclude with a summary of best practices for increasing the representation of females in the educational pipe-line, along with a rationale for why Christians might be called to devote their time and attention toward various activities designed to encourage more women to enter engineering.

Saturday, 26 July 2014

4:30 PM

Feminine Sin and Female Scientists

E Janet Warren

The words *sin* and *science* are seldom mentioned in the same sentence. However, I suspect that sin, both individual and societal, is a contributing factor to the observation that male scientists outnumber female ones. The gender gap in science has been addressed primarily in feminist and sociological literature; there has been little discussion from a Christian perspective.

In this presentation, I first review the literature on the gender gap in Science, Technology, Engineering and Mathematics (STEM), including statistics, theories, and responses. Then I discuss the biblical/theological literature on gender equality, including what it means to be created in the image of God and commanded to care for creation. I next turn to the concept of sin and how it has been understood in Christian theology. This multifaceted notion encompasses individual and community, as well as "masculine" (domination) and "feminine" (neglecting responsible dominion and undervaluing themselves) manifestations.

Previous literature has examined the problem from the perspective of a patriarchal society; this idea considers it from a different point of view. Considering the relationship between sin and the lack of women scientists can contribute to both our understanding of and our response to the gender gap in STEM, and may guide strategies for change within the Christian community.

EMERGENCE

Saturday, 26 July 2014

3:30 PM

Emergence and the Property of Life

Phyllida Drummond

Schönborn, in his book *Chance or Purpose*, asks the question "Can lower things bring forth from their own power, higher and more complex things? Nothing in our experience suggests that something lower can give rise to something higher, simply of itself, without some directive and organizing activity, and still less to do so and quite by chance." We understand Schönborn's point through ordinary observations: changing geometric patterns play out on the sandy shore as the waves roll the tiny sand grains about, but a complex sand castle or a computer chip will not emerge from the interaction of sand grains even over millions of years.

Yet, the most intellectually appealing concept that explains our understanding of nature is counterintuitive; it is that the random interactions of subatomic particles (fermions and bosons), that some suggest are the only fundamental reality, in a series of interactions that increase in complexity over time, eventually give rise to living organisms, which at the pinnacle of their interactions, are endowed with consciousness and reason to the point where conscious life can probe the very nature of these particles and their interactions. How is it that we see the lower giving rise to the higher?

To address this question, I propose we begin by looking at the concept of emergence. We will develop the idea of emergence from its beginnings in Britain, where a group known as the British emergentists began discussing novelty in nature, and continue to follow this functional principal through a more contemporary understanding. It will be suggested that through our development contained within the concept of emergence is the implication that matter is at once empirical and transcendent. It would have to be so if there is a continuous flow of events from the big bang at the beginning of time to the appearance of all the diverse life forms, without interruption or interference. Our development will suggest that fundamental particles are inherently endowed with an emergent tendency where novelty arises from lower level interactions, and that there is a hierarchal structure to the emergence of novelty as complexity increases. Finally, by using the cell as a model system, I will support the thesis that the property of *life*,

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at the level of the cell, is an example of ontological emergence.

Saturday, 26 July 2014 4:00 PM

Functional Information and the Intelligent Design-Theistic Evolution Dialogue

Robert J Marks II and Walter Bradley

The early work of Wilder-Smith and Thaxton, Bradley, and Olson claimed that the primary barrier to the origin of life was specified complexity (and the associated information) of biopolymers such as DNA, RNA, and protein. Subsequent work by Dembski, Marks, and Meyer has further argued that the evolution of life involves an accumulation of additional functional information. The work of Axe, Behe, Meyer and others has sought to determine whether mutation/natural selection and other related processes constitute a sufficiently robust cause to account for the necessary increase in functional information associated with macro-evolutionary events such as the Cambrian explosion.

This presentation will explore the information creation potential of mechanisms now understood in reproduction to determine to what degree we can quantify the information generation potential of these mechanisms. It will also explore mechanisms that might create additional information that cannot yet be quantified. Finally, it will explore whether some “deeper design” as proposed by Simon Conway Morris might be required to provide some additional information.

The primary difference between theistic evolutionist and intelligent design proponents is centered on this question of mechanism(s) to create the required functional information observed in living systems. This presentation seeks to further this conversation.

Saturday, 26 July 2014 4:30 PM

Generating New Functional Information **Randy Isaac**

In the quest to understand how the various forms of life arose in certain eras such as the Cambrian Explosion, it is often claimed that new functional information cannot be generated without the aid of an intelligent agent. Hence, the surge of new information generated in those eras must have involved an intelligent designer. In contrast, many scientists claim that enough new information can be generated in the normal reproductive

variation to explain the observed rise of new species.

In this talk, these two contrasting views are explored in more depth to provide clarity of the supporting evidence for each one. On one hand, it has been argued that the possibility space of information is so vast that there is negligible probability of obtaining one of the few configurations that are functional. Hence, an intelligent agent must have acted in some way to obtain the requisite new function.

On the other hand, information theory affirms the possibility of the generation of new functional information. It is noted that probabilities of such occurrences cannot be reasonably estimated when the relevant mechanisms and processes are not all understood and quantified. Rather, observations of variations in reproduction are sufficient to demonstrate the principle of the generation of new functional information.

Sunday, 27 July 2014 1:30 PM

Case Studies in Emergence: Bridging the Gap between Science and Theology

Jamin Hübner

The subject and phenomenon of “emergence” has gained considerable attention in the past decade of academic research, particularly in the areas of science and philosophy. However, little work has been done in relating the phenomenon of emergence as it exists in science, and emergence as it exists in the traditional categories of systematic theology. This is unfortunate since emergence is, indeed, interdisciplinary, and the challenges and discoveries in one academic discipline may (directly or indirectly) benefit other disciplines. The relationship between science and theology in this respect largely depends on how one defines “emergence.” Nevertheless, even in highly nuanced definitions, emergence does exist in the heart of traditional, historic Christian doctrines as much as it does in contemporary science.

This common ground of emergence therefore functions as a bridge between science and theology; “hard science” offers the cutting-edge of empirical research, theology the wisdom of the past in the form of creedal formulations and theological tradition. To show how both of these disciplines interact with emergence and all of the relevant challenges, a number of specific case studies from both areas will be surveyed and evaluated. Final conclusions will be drawn that demonstrate

the significant implications of this interaction between science and theology, and what it means for Christian scientists and theologians in the ever-changing 21st century.

Sunday, 27 July 2014 2:00 PM

Did Consciousness Emerge from Cosmos or Vice Versa?

Paul H Carr

Can a scientific worldview of the emergence of psyche and mind from matter be reconciled with that of biblical creation?

Scientists have discovered how matter originated from a cosmic Big Bang and are searching for natural processes that gave rise to psyche. For anthropologist Terrence Deacon, life emerged in three stages: thermodynamic (chaos), morphodynamic (form), and teleodynamic (*telos* = purpose). The emergent teleological properties of the first living cell can be more or less than the sum of its interacting parts. Deacon thereby formulates a scientific worldview: consciousness and psyche emerge from the firing of our neurons but cannot be reduced to them. The emergent evolutionary process created *Homo sapiens* who perceives the created natural world as beautiful. Thus, consciousness emerged from cosmos.

As the prophet Isaiah wrote, “*How beautiful upon the mountains are the feet of him that bringeth good tidings*” (52:7). Jesus brought us this good news. “*The world was made by him*” (John 1:10) because he was with the creating “Spirit of God” (Gen. 1:1) in the beginning. Cosmos thus emerged from the “Word (*logos*) of God” (John 1:1) and divine consciousness.

I will show how both theistic evolution (BioLogos) and the complementary beauty of science and spirit can reconcile Trinitarian biblical creation with science.

Sunday, 27 July 2014 2:30 PM

A Technological God? The Emergence of Religious Transhumanism

David C Winyard Sr

Max More, an atheist philosopher and president of Alcor, the leading cryonics organization, describes transhumanism as “a reason-based philosophy and a cultural movement that affirms the possibility and desirability of fundamentally improving the human condition by means of science and technology.” Through a convergence of technosciences later this century, transhumanists anticipate that a new posthuman species will eventually

emerge, one without the limitations of our biological bodies and minds. But for many transhumanists, the technological aspirations do not stop with merely transcending humanity, version 1.0. Religious forms of transhumanism are proliferating, with one group declaring its intent to “create God.”

What accounts for the emergence of religious transhumanism? What distinguishes it from “traditional” varieties? What kind of God would transhumanists create? How might this would-be deity compare with the God of the Bible? Exploring these questions can illuminate the issues Christians will confront as enhancement technologies mature and make their way into everyday life and culture.

Sunday, 27 July 2014 3:30 PM

The Distribution of Life: Is Evolution Predictable?

**Tom Woolley, Steve Donaldson,
Jason Goebel, Nick Dzigan**

Randomness is apparent in many aspects of evolution. None of its manifestations in nature, however, would be classified as pure chance or ontological randomness; rather randomness is always constrained. Data are generally characterized symmetrically with the arithmetic mean plus or minus either the standard deviation or the standard error of the mean. In reality many empirical distributions in the natural world are skewed making the assumption of symmetry improper and leading to possible misinterpretations of the data.

Models that take into account the asymmetry of the data may be better served by underlying generative models such as the lognormal. Taking data asymmetry into account when describing it may lead to greater analytic quality and deeper insight into any information inherent in the data.

The ultimate goal of our research is to see if it can be demonstrated that constraints on chance occurrences in evolution result in a set of boundary conditions that actually enable some level of predictability from a system generally viewed by scientists as incorporating any number of purely random features. To what extent might God have exerted pressure on the evolutionary process?

This phase initiates our search for empirical evidence that supports (or refutes) the specification of quantitative factors underlying convergent evolution and/or self-organizing behavior in the natural world. With this in mind, we report on our phase I results, a thorough evaluation of the

distributional characteristics of one of our primary outcomes, time (i.e., number of generations) to reach target fitness.

Sunday, 27 July 2014 4:00 PM

Panel Discussion on Emergence

**Harry Cook, Arnold E Sikkema,
Jitse M van der Meer**

We will discuss the various themes addressed in the preceding talks in the emergence stream, drawing connections with and implications from them. We will also bring forward other relevant issues in emergence by engaging with recent works in fields such as biology, physics, biophysics, biosemiotics, information science, and philosophy of science, particularly being informed by reformational philosophical perspectives. After initial presentations by each panelist, and a brief dialogue among us, we will lead a general conversation with presenters and attendees of the emergence stream.

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Saturday, 26 July 2014 10:15 AM

Transformative Experiences of Creation Care

Darren Brouwer

As God’s image bearers in his created world, we have been given the calling of working and caring for his creation. However, the church has not always lived up to this calling of care and stewardship, although there are encouraging signs of this beginning to change. Creation care requires a solid biblical theology of earth-keeping as well as the scientific knowledge and environmental literacy required to understand and care for creation well. This talk will highlight the importance of experiences of creation care as a third element that is key to changing—even transforming—attitudes and practices among Christians with regard to caring for God’s creation.

This talk will describe the impacts of a water quality monitoring project carried out by chemistry students at Redeemer, as well as the community-based conservation work carried out by A Rocha in the Hamilton area, in Canada, and globally. These hands-on projects provide university students and the broader Christian community an opportunity to experience and practice stewardship of God’s creation and also provide a hopeful witness to the environmental community.

Saturday, 26 July 2014 10:30 AM

Guiding the Stewardship of God’s Creation: An Example from the Most Densely Populated State in the USA

Sharon Petzinger

As a follower of Christ and a biologist who works with rare and endangered wildlife in New Jersey, I have been called to prevent the extirpation of the species in my area of expertise. One of the ways I achieve this is by attempting to stabilize or reverse the effects of man-made changes to these species’ habitats. This has many facets to it—some decisions are easy and some are not—but the most challenging decisions involve determining which of the rare and endangered wildlife species should take priority when managing habitat remnants.

New Jersey is the most densely populated state in the USA but still retains a high degree of biodiversity despite the increasing suburban sprawl. In 2007, the amount of urban land finally exceeded the amount of forest New Jersey has left, and we are quickly approaching build-out. The resulting fragmentation of New Jersey’s forests, coupled with our land-use history, have created marginal habitats for many of our rare species. As a result, many ecologists are grasping to save what’s left for “their” rare species, at times to the detriment of people and other rare species.

In my presentation, I will explore ways in which ecologists can honor God by balancing the stewardship and restoration of God’s creation in a rapidly suburbanizing landscape using the knowledge and skills he has freely given us.

Saturday, 26 July 2014 10:45 AM

The Hidden Things of God in the Ocean

Robert D Sluka

The rocky intertidal zone exists at the interface of land and sea. Rockpools in this zone filled with a variety of marine biodiversity are often our first introduction to the ocean. A Rocha Kenya has been studying this ecosystem in Watamu Marine National Park resulting in cataloguing high biodiversity, including a rare, endemic coral species. We also found a high contribution to offshore coral reefs as nursery areas for valuable fisheries species. Yet these “hidden things of God” in the ocean are only revealed during a small window of time at low tide.

I explore our research and conservation efforts in this ecosystem through the lens of Matthew 5:14–16 regarding the role of research and Revelation 5:9–13. The

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role of the marine researcher is to bring to light these hidden things and work with those in marine conservation to protect and bring to fruition new creation in the ocean. Ultimately, the goals for the Christian involved in this endeavor are to glorify the Father and work toward all creation functioning, in order that God be praised.

Saturday, 26 July 2014 11:00 AM

Food System Reform Consistent with Christian Stewardship Could Drive Improved Ecological Health and Sustainable Healthcare

David L Dornbos Jr

Adoption of a polyculture-oriented, agroecologically sound food system spearheaded by faith-based organizations motivated to live healthful and stewardly lives could improve global food security, reduce healthcare cost, and restore degraded agricultural land. The desire for improved personal health is a prime factor that could motivate Christians, directly or indirectly, to take action that will improve environmental health.

Consumption of unhealthy food and lack of exercise drive unsustainably high healthcare costs. Least healthy foods include processed foods and meat products, both of which benefit from the production of large quantities of corn and soybean using industrial food production processes. While industrialized systems are incredibly efficient from a labor-saving perspective, they are wholly inefficient from water-, nitrogen-, and energy-use, or quality calorie produced per unit of land area perspectives, driving significant ecological degradation.

A whole-foods plant-based diet, including low meat consumption levels, will substantially reduce agricultural production resource requirements. If feed requirements of livestock are diverted to direct human consumptive needs, global production capacity would exceed that required to feed 9.5 billion people. Whole-food plant-based diets not only avoid, but can also reverse diabetes II and chronic heart disease, and reduce the incidence of many cancers.

Implementation of agroecological techniques like polycultures, requiring an infusion of human labor, increase productivity over monoculture systems by another 140–250%, necessitating jobs and producing quality calories. A full sense of stewardship within the Christian community should reform diet thereby fostering an agroecological production system that would produce improved economic, environmental, and community health.

Saturday, 26 July 2014 11:15 AM

Publishing in Creation with Illustrations from Garry Oak Ecosystem Restoration in the Pacific Northwest

David R Clements

The field of restoration ecology is based on ecological principles developed through the systematic study of the complex interrelationships between organisms and their environments. Academic researchers who study ecological restoration often seek to incorporate research goals into ongoing practical restoration work, in order to further the science of ecological restoration. Thus the goal is often to publish research in scientific journals and similar venues so that other practitioners can apply this knowledge to actual restoration, i.e., publishing in creation.

A paradigm of adaptive management has been developed to enable corrections to be made “on the fly” because a given system does not always behave as predicted by ecological theory. Yet even the adaptive management approach holds considerable ambiguity. Furthermore, cultural landscapes are entangled with the natural landscape resulting in additional uncertainty and subjectivity. The tools of science fall short, as do the objectives of science in terms of the normal peer review process.

Christian theology predicts these shortcomings. Human restoration ecologists are inherently sinful and God demonstrates his unapproachable wisdom in the design of dynamic ecosystems within a dynamic cultural milieu. Fortunately, God does not require perfection in those who attempt to publish in the landscape, despite his serving as the ultimate judge of human attempts to restore creation.

In this presentation, I will draw from my experience in attempting restoration of Garry Oak ecosystems of the Pacific Northwest to illustrate the divine peer review process by which God’s stewards may publish fruitfully in creation.

Saturday, 26 July 2014 11:30 AM

Developing an Interdisciplinary Course on Global Development and Sustainability

John Korstad

During the S2013 and 2014 semesters, I co-taught a new Honors course titled “Global Development and Sustainability” that involved invited speakers from among our university faculty along with guests from local businesses and civic groups. Students benefitted from hearing and discussing

the interdisciplinary challenges of global development and sustainability.

The purpose of this course is to enable the student to understand what the Bible says about worshipping God through admiring, protecting, and restoring his creation; to understand the exploitation and misuse of the earth’s resources that has led to a wide range of catastrophes in the realms of human health, natural ecosystems, the economy, social welfare, and social justice; to understand the scientific, legislative, market, and social tools that have been invoked to address the causes of these problems and to attempt to rectify them; and to understand the diverse styles of problem solving that have been utilized to address environmental degradation.

I hope to foster an interest in developing similar courses at other universities, particularly those that are faith based.

Saturday, 26 July 2014 1:30 PM

Brother Marie-Victorin: Christian Advocate for the Environment in French Canada

Charles E Chaffey

Brother Marie-Victorin (1885–1944) was French Canada’s most distinguished scientist of the early twentieth century. A botanist, educator, and political activist, he published on ecological dynamics, and he made the public aware that the natural environment sustains all life.

At the start of his career, French Canada, still a British colony less than half a century earlier, had a Roman Catholic educational system that almost ignored science, and it had an economy dominated by outsiders. Because these weaknesses in post-colonial French Canada have parallels in the developing world today, the ways Marie-Victorin built up science and environmental knowledge in his community continue to be relevant.

Around 1900, religious opposition to evolution hindered understanding of the long-term dynamics of ecosystems. Marie-Victorin too began by criticizing Darwinism, but soon he became convinced that evolution is scientifically valid and should be taught.

Drawing on field experience from the subarctic to the tropics, he argued that floras have been in constant change since the Devonian, and he challenged the concept that ecological succession leads to a climax that can persist indefinitely. Marie-Victorin urged preservation of the agricultural land on which human life depends, and through

education in the environmental sciences, he empowered French-Canadians to be the stewards of their region's natural resources. He established a major botanical garden in Montreal which displayed the region's different ecosystems.

Marie-Victorin always saw the natural world as God's work, and he sought to point people to the Creator by knowing his creation better.

Saturday, 26 July 2014 **1:45 PM**

Earthquakes and Evil: Developing a Theology of Natural Disasters

Tim Middleton

The 1556 Huaxian earthquake in central China is thought to be the deadliest earthquake in human history, killing an estimated 830,000 people. A number of scientists have suggested that an individual earthquake that kills more than one million people is likely to happen this century. The tragic loss of so many lives is almost unimaginable. So what are Christians to make of this?

One response is to start talking about theodicy: how can we justify God's existence in the face of such terrible destruction? Perhaps those who suffer will be rewarded in heaven? Maybe earthquakes are necessary for life on the planet to exist? Or could earthquakes be the result of the Fall? We are in need of a robust theology of earthquakes.

In this paper, I want to suggest that trying to construct a theodicy is not an appropriate reaction; attempting to rationalise or justify such evil is not a properly Christian thing to do. The only possible response is to follow Christ's example and to live our lives compassionately—literally, *suffering with* those in pain. Only in Christ can we make any sense of the problem.

Saturday, 26 July 2014 **2:00 PM**

Climate Change and Christian Stewardship: Toward an Alternative Framework for Understanding Questions of Creation Care

Johnny Wei-Bing Lin

Perhaps there is no contemporary environmental issue that has fostered as much debate among Christians as climate change. The debate, however, has yielded limited fruit in mutual understanding between the various sides; sometimes, one gets the sense that much of the time we are talking past one another.

In this talk, I propose the outlines of an alternative framework for understanding questions of creation care. I begin by summarizing the understanding of climate change as given by the Intergovernmental Panel on Climate Change which, while not without its flaws, provides a reasonable summary of the current state of knowledge about climate change. Next, I discuss the limits of what science can provide to inform policy debates and argue that much of the debate regarding climate change is really disagreement over extra-scientific questions. Finally, I outline a more complete framework for determining what a "considered obedience" to God's creation care commands looks like, and use this framework to tentatively examine what Christian creation care would look like with regard to climate change.

Saturday, 26 July 2014 **2:15 PM**

Christians, Climate Change, and Our Culture

Katharine Hayhoe

Mounting scientific evidence clearly documents the risks posed by climate change to the poor, the needy, and other vulnerable populations, the very people Christians are called to love. As the scientific evidence builds, however, so does the vocal opposition to this evidence in Canada, the US, Australia, and even in the UK. Much of the disagreement comes from political and religious conservatives. Why is climate change so polarizing to these communities? What makes it so hard to comprehend and accept?

Combining basic tenets of the Christian faith with recent findings from the areas of psychology, sociology, and climate science, I will discuss potential reasons for these disagreements and the role that shared values may play in moving us forward past these barriers.

Saturday, 26 July 2014 **2:30 PM**

The Problem of CO₂ and Solutions from the World of Chemistry

Terry M Gray

Growth in energy demand is spurred on by new technology, population growth, and the development of the majority world. Everyone needs and wants energy. Energy demand is expected to double in the next 50 years. Currently 70–80% of global energy needs are met by burning fossil fuels (coal, oil, and natural gas) to produce electricity generation or directly used in transportation or heating applications.

CO₂ is a product of this combustion and is typically emitted into the atmosphere. Atmospheric concentrations of CO₂ have risen from 280 ppm to the current level of 400 ppm. This increase corresponds to about half of what has been emitted by fossil fuel combustion since the rise of industrialization in the 19th century. The remaining emitted CO₂ has been absorbed by the oceans and by plants. CO₂ is a known greenhouse gas and is expected to cause an increase in atmospheric temperatures. The consensus among climate modelers is that this is happening.

Transitioning to alternative and renewable energy sources (nuclear, wind, solar, geothermal, biofuels, etc.) with no CO₂ emissions is the most desirable solution, but unlikely to happen quickly given our huge dependence on fossil fuels and their current low cost. Additionally, hydrocarbon fuels are among the most energy dense and are highly desirable for many long-distance transportation applications. Capturing CO₂ from power plant smokestacks or directly from the atmosphere will enable us to remediate the current CO₂ problem. Recycling captured CO₂ will place an economic value on CO₂ that will allow ordinary market forces to help solve the CO₂ problem. The technologies for carbon capture and for carbon recycling are well known. They simply need to be scaled to levels comparable to current fossil fuel related technologies. Ultimately, recycling CO₂ will eliminate the need for further fossil fuel combustion and will make hydrocarbons themselves renewable.

Saturday, 26 July 2014 **2:45 PM**

Should We Split Atoms or Carbon-Carbon Bonds: Some Considerations from Biophysics, Toxicology, and Environmental Stewardship

Glenn A Marsch

The specter of the mushroom cloud is a potent symbol of the public's unease about harnessing nuclear energy and is perhaps the largest impediment to accepting nuclear energy as an alternative energy source. Yet some environmentalists, such as James Hansen and James Lovelock, are promoting nuclear energy as a means to greatly decrease CO₂ emissions into the atmosphere.

The problem of environmental impact and human toxicity will be discussed from a toxicological point of view, starting with the biochemistry and biophysics of DNA damage both by ionizing radiation and by reactive toxicants produced by fossil fuel oxidation. In mammals, the repair

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of DNA damage induced by radiation is performed largely by DNA polymerase kappa (POLK). Repair of radiation-damaged DNA and subsequent mutation events will be discussed in light of the Linear No-Threshold (LNT) dose response model. The relative environmental impact of waste storage and dispersal during energy production will also be evaluated.

Nuclear energy has risks, but its advantages are not always fully appreciated. Responsible Christian stewardship and dominion demand that we weigh the options carefully.

Saturday, 26 July 2014 **3:30 PM**

Natural Gas and Renewable Energy: Competition or Synergism?

Kenell J Touryan

Recent developments in horizontal drilling and advanced hydraulic fracturing (or fracking) techniques have greatly increased the availability of unconventional natural gas and oil in shale rock. Soon, the US may become a net gas and oil exporter. Many wonder if this abundant and low cost source of energy, using natural gas or oil, will stunt the penetration of renewable energy technologies (RETs) into the US market.

Methane (natural gas) released directly into the atmosphere during the fracking process, though it may be small in quantity, contributes twenty-one times as much to the greenhouse effect as CO₂ does. In addition, hydraulic and other fracking techniques can create ground water contamination problems, especially when conducted near populated areas.

Renewable energy technologies, therefore, do remain a priority in planning for future energy consumption worldwide because of their minimal impact on the environment. Renewable energy from wind is intermittent, and solar energy is diurnal. These drawbacks can be overcome by helping utilities develop flexible dispatch systems and smart, or digital, grids.

This presentation will cover a brief review of the technology of fracking in shale rock along with its environmental impact, followed by a review of the case for climate change caused by the anthropogenic contribution of greenhouse gases. The presentation then will focus on the possible synergism between RETs and fossil fuels, to meet the ever-increasing energy need worldwide, with an eye toward minimizing, by employing a synergistic effort, the environmental impact.

Saturday, 26 July 2014 **4:00 PM**

Climate Science and the Dilemma for Christians

Donald C Morton

We have heard from many sources that the most important environmental problem is global warming caused by carbon dioxide (CO₂) from the burning of fossil fuels. However, after a gradual rise of about 0.5°C from 1978 to 1998, the global temperature has remained essentially constant for the past 16 years whereas the atmospheric concentration of CO₂ has steadily increased, contrary to the predictions of climatologists. Thus it is not possible to estimate how much, if at all, we should reduce our production of CO₂.

Temperatures could begin to rise again as we generate more CO₂, or they could fall as suggested by the recent reduction in solar activity. Many climatologists are investigating phenomena left out of their models that might account for the present plateau, but most of these effects could also explain much of the previous temperature rise.

In this situation, what policies should a Christian be advocating? As insurance against future warming, should we adopt aggressive action to reduce our generation of CO₂ even if it has serious economic consequences? (Policies with little effect on the economy will have little effect on the global generation of CO₂.) Should we pay the compensation demanded by developing countries for all the CO₂ we have added to our atmosphere since the Industrial Revolution or for damage by extreme weather events such as the recent typhoon that hit the Philippine Islands? How important is zero population growth for limiting global warming?

LIFE SCIENCE

Saturday, 26 July 2014 **10:15 AM**

TOLL and TOLL-like Receptors from Drosophila to Humans: The Bell Tolls for All **Patricia Fitzgerald-Bocarsly**

The mammalian immune system recognizes pathogens through two complementary and interactive immune responses—the innate and adaptive responses. Innate immune mechanisms are particularly attuned to recognize structures that are common to specific classes of pathogens while the T cells and B cells of the adaptive

immune response are highly specific and can distinctly recognize subtle molecular differences between pathogen-derived antigen. The innate immune response recognizes pathogens through “pattern recognition receptors” (PRRs) that recognize pathogen-associated molecular patterns (PAMPs) on pathogens or damage-associated molecular patterns (DAMPs) from damaged cells/tissues.

Early studies in drosophila demonstrated the existence of a gene encoding the TOLL protein; in the developing fly embryo, TOLL directs dorsal/ventral development, while in the adult fly, it has anti-fungal activity. These observations led to the search by Ruslan Medzhitov for a mammalian equivalent of TOLL in the 1990s and the ultimate discovery of not one but more than a dozen Toll-like receptors (TLRs) in mammals. These TLRs have distinct specificities for PAMPs such as bacterial lipopolysaccharide (TLR4), viral ssRNA (TLR7/8), bacterial/viral DNA (TLR9), and bacterial flagellin (TLR5). In the studies performed in the Fitzgerald-Bocarsly laboratory, plasmacytoid dendritic cells (pDC), which are key innate cells that bridge innate and adaptive immunity, were found to constitutively express TLR-7 and -9 in the endosomal compartments, where they respond to viral RNA/DNA stimulation, respectively, leading to the expression of high levels of IFN-alpha/beta. IFN-alpha/beta, in turn, are potent anti-viral and immunomodulatory cytokines.

In this talk, I will describe how TLRs are expressed differentially in different mammals and different cell types, how they function in human pDC, and how the clear evolutionary evidence regarding TOLL and TLR expression from drosophila to mice to humans helped shaped the author’s views of evolution as a tool used by God in creation.

Saturday, 26 July 2014 **10:45 AM**

Antioxidant Induces DNA Damage, Cell Death, and Mutagenicity in Human Lung and Skin Normal Cells

Linda Y Lu, Ning Ou, Qing-Bin Lu

It is long thought that antioxidants kill reactive oxygen species (ROS) produced in normal cellular processes and may therefore protect cells from *oxidative* damage. Therefore, there is increasing use of dietary and cosmetic antioxidants in attempts to slow down the aging process and to prevent the development of diseases such as cancer and heart disease. However, clinical trials in humans have shown that antioxidant supplementation increased the risk of lung and skin cancers. But the underlying molecular mechanism is unknown.

In our recent study, we found that the green-tea extract *epigallocatechin gallate* (EGCG) as an exemplary antioxidant induced significant death and DNA damage in human lung and skin normal cells through a *reductive damaging mechanism*. Our results show directly the electron transfer from EGCG to dGMP. We also found that EGCG was much more toxic against human lung and skin normal cells than H₂O₂ and cisplatin as toxic and cancer-causing agents, while EGCG at low concentrations ($\leq 100 \mu\text{M}$) increased slightly the viability of lung cancer cells. We also show that EGCG not only induced DNA double-strand breaks and apoptosis in the normal cells but enhanced the mutation frequency detected by the hypoxanthine phosphoribosyl transferase (*HPRT*) assay using Chinese hamster ovary cells.

These results provide a compelling explanation for the clinical results of lung and skin cancers associated with antioxidants. This study also unravels a previously unrecognized reductive damaging mechanism in cellular processes, which may provide a fresh understanding of diseases and lead to effective prevention and therapies. Interestingly, recent animal experiments also showed that antioxidants accelerated lung cancer progression in mice.

Saturday, 26 July 2014 **11:00 AM**

Mutational Studies of Yeast Hexokinase Isozymes
Hannah Ryan

Hexokinases (HKs) are a group of isoenzymes that are important regulators of human glucose metabolism. HKs are implicated in a variety of disease states, including diabetes and cancer. Despite the wealth of structural and biochemical data, little is known about the interaction between these isozymes and their ligands.

In the present work, we attempt to correlate the unique structure of HK isozymes with the strength of ligand binding. We will use computational biochemical techniques to make predictions of the forces that stabilize sugar binding, and then we will test our predictions in the laboratory using genetic engineering techniques with yeast HKI and HKII as our model.

We will compare mutations of HKI and II to determine whether a difference in sequence corresponds to different kinetic properties. We will utilize UV-Vis assays and isotitrating calorimetry to find the dissociation and association constants for our isozyme samples. Our research will provide a better understanding of HK isozymes and could lead to targeted drug

developments that employ an inhibitor or activator that targets just one isozyme.

Saturday, 26 July 2014 **11:15 AM**

Teaching Evolution from a Christian Perspective at Grove City College
Jan Frederic Dudt

In the spring of 2013, the biology department at Grove City College offered its first course dedicated specifically to the topic of evolution. Grove City College students exemplify a wide range of faith commitments, but many are conservative Christians with characteristic sensitivities.

This session will present how the course (1) gives insight into challenges such as how can Christians embrace the theory while doing justice to a biblical doctrine of creation, including creation of humans, (2) gives an overview of the development of evolutionary theory and its reception by scientific and faith communities, including reasons for the reception it received, (3) provides an accurate overview of evolutionary theory and its principles and internal discussions, (4) deals with philosophically contentious statements by mainstream theorists, (5) considers evolution's influence on perspectives in areas such as agriculture, medicine and ethics, and (6) gives opportunity for students to grow in intellectual honesty within the context of their faith.

Sunday, 27 July 2014 **1:30 PM**

Original Sin Revisited: An Inevitable Theological Paradigm Shift?
Denis O Lamoureux

The doctrine of original sin has been a foundational belief of the Christian faith throughout most of church history. It is a complex doctrine that is intimately connected to the fall of humans as presented in Genesis 3 and later interpreted by the apostle Paul in Romans 5:12–21. The essence of the doctrine of original sin can be summarized by two basic tenets: (1) Original sin is the very first sin committed by the very first man created, whom the Bible identifies as Adam. (2) Original sin includes the notion that all humans who have ever lived descend from Adam and that the sin of Adam has been transferred through sexual reproduction to everyone as his own.

Recent scientific findings in genetics have called into question the historicity of Adam, and by implication the historic doctrine of original sin. Remarkably, this discussion is even occurring within evangelical circles. For example, a landmark issue of *Christianity Today* in June 2011 featured

a cover with a Neanderthal-looking male and the title "The Search for the Historical Adam: The State of the Debate." The cover blurb commented, "Some scholars believe that genome science [i.e., genetics] casts doubt on the existence of the first man and first woman. Others say that the integrity of the faith requires it."

To be sure, rejecting the historicity of Adam will have resounding implications for the doctrine of original sin. If Adam did not exist, then he could never have committed the first sin. And if Adam never existed, then all of humanity did not descend from him and his sin could never have been passed on to every human being through sexual reproduction. Or to cast this problem in the form of a question: If indeed there was no Adam and as a consequence no original sin, is it inevitable that Christian theology will experience a theological paradigm shift, no different than those scientific paradigm shifts that have been seen in the history of science?

This paper unfolds in three parts. First, we will examine some of the most important documents in church history dealing with the doctrine of original sin in order to feel the weight of questioning the historicity of Adam and by implication the truthfulness of this foundational doctrine. Second, biblical passages by the apostle Paul related to original sin are presented to further intensify the gravity of this problem. Finally, I will offer one approach toward a possible solution of moving beyond the historicity of Adam and the traditional doctrine of original sin. I will assume an evolutionary creationist view of human origins as well as a nonconcordist hermeneutic of biblical passages dealing with the creation of the natural world. Furthermore, by embracing a biblically based approach to natural revelation (theology), I will attempt to cast human sinfulness within the framework of an evangelical Christian evolutionary psychology.

Sunday, 27 July 2014 **2:00 PM**

Nonhuman Animal Suffering and the Christ Who Holds All Things Together
Bethany Sollereeder

The theme of our conference, "All things hold together in Christ," is based on the famous passage in Colossians 1. The sovereign lordship of Christ is easily plausible when we contemplate the happy natural realities of kittens and daisies, quasars and comets. But how does Christ's lordship make sense of billions of years of evolutionary history, relying (as it does) upon death, suffering, and extinction?

The problem is particularly intensified when one considers that the majority of suffering life is not human, and so cannot be explained by the traditional theologies of soul formation, or the need for divine hiddenness. Equally, since suffering had a long prehuman history, we cannot understand the existence of nonhuman animal suffering as a result of the Fall.

In this paper, I will explore the nature of Christ's redemption as one small component of a wider theodicy. How does our reflection on the life, death, and resurrection of Christ help us understand the suffering of a fawn caught in a forest fire or the extinction of the dinosaurs? I will propose that the image of redemption as a fractal picture mosaic framed around the death and resurrection of Jesus helps us hold together the creative love of God, the freedom of the world, and the hope of a transformed existence with the realities of nonhuman suffering.

Sunday, 27 July 2014 **2:30 PM**

**Combating the Cosmos without Christ:
Thomas Henry Huxley's Conflicted
Case against Evolutionary Ethics**
Paul Fayter

"Social progress means a checking of the cosmic process at every step and the substitution for it of another, which may be called the ethical process ..."

T. H. Huxley, 1893

On 18 May 1893, in Oxford's Sheldonian Theatre, Darwin's bulldog, the polemical slayer of theologians and preacher of what he called "agnosticism" and "scientific Naturalism" delivered his last public lecture, "Evolution and Ethics." Shockingly, Huxley broke ranks with his evolutionary friends in rejecting the claim that moral norms could be derived from nature, specifically the processes of evolution, including Darwin's "struggle for existence" and Spencer's "survival of the fittest." In the name of ethics, Huxley *opposed* what he called "the gladiatorial theory of existence" with all its creaturely suffering, pain, sorrow, and death. Evolution's ways, wherein the weakest went to the wall, were to be resisted, not followed. This seemed an abrupt change from his lifelong view of nature as moral and social guide.

Historians and philosophers of evolution, including Huxley scholars, have accepted Huxley's overt thesis—ethics have evolved, but evolution is not ethical—at face value. That is, they believed that Huxley, near the end of his life, *reversed* himself regarding nature's benevolence.

My paper contests this interpretation by stressing continuities in Huxley's views of nature. Regarding his attempt to maintain a suspiciously familiar morality without natural or divine warrant, I shall focus on elements of ambivalence, paradox, irony, and tragedy in Huxley's infamous essay.

Sunday, 27 July 2014 **3:30 PM**

**Genetic Manipulation and
Patenting of Genes and GMOs**
Uko Zylstra

Recently the US Supreme Court ruled that one could not patent human genes. This ruling, with important implications for the medical and pharmaceutical industry, is in sharp contrast to the thousands of patents on plant and animal genes that have significant impact on agriculture and food production. This raises questions as to whether such manipulations are an appropriate stewardship of God's creatures and whether patents on genes and living things (GMOs) are ethically appropriate. Furthermore, are GMOs with the associated patents necessary to ensure an adequate food supply to feed the growing population as the biotech industry claims?

This session will discuss implications of how we are to understand genes in the context of living organisms, and some of the ethical issues related to genetic engineering, including patenting of genes and GMOs.

Sunday, 27 July 2014 **4:00 PM**

**Why Do Christians Find the
Artificial Reproductive Technologies
So Challenging?**
D Gareth Jones

The emergence of *in vitro* fertilization (IVF) in the late 1970s and early 1980s was met by mixed responses within Christian circles. These varied from outright hostility amid fears that human life as we know it was threatened, to guarded acceptance of the major procedures. Looking back on those responses 35 or so years into the future, what have we learned and what might an appropriate theological response be today?

I shall argue that the responses fall into five categories: (1) embryo centered—categorical; (2) embryo centered—precautionary; (3) embryo centered—human control; (4) child and family centered—addressing infertility; (5) desire centered—overcoming human limitations. While embryo centered categories (1–3) predominate among conservative Christians, there are distinct differences within

these categories pointing to a variety of presuppositions. Overall, however, they place far more ethical and theological weight on the embryo than on those seeking assistance to ameliorate clinical fertility problems (4). The desire-centered category (5) is common within secular thinking and points to the multiplicity of ways in which traditional ethical boundaries have been shattered by some applications of the artificial reproductive technologies (ARTs).

I suggest that Christian approval of the ARTs will be a circumspect approval, and will seek to grapple with questions of motivation, limits on ways in which the ARTs will be employed, the centrality of human relationships for decision-making, and the role of legitimate scientific investigation in understanding early human development. These considerations bear upon how Christians function within the public square.

Sunday, 27 July 2014 **4:30 PM**

**Information in Genomes:
Scientific, Theological, and
Ontological Perspectives**
James Johansen

Current genomic and bioinformatics research is producing data about organism genomes, documenting the relationship of DNA to proteins, disease, trait expression, etc. If God organizes our world to be discoverable what is the nature and meaning of genomic information and how can it be characterized? This presentation explores cross-disciplinarily genomic information from a scientific, theological, and ontological perspective as follows:

Scientific—A summary of genomic research is given showing evidence of system function with extremely complex operations going on. Yet how do we effectively look at and understand over 3 billion base pairs in the human genome? Research has found evidence of function wherever it has been explored and understood. Approaches to genomic process modeling in my research are discussed.

Theological—Relevant theological insight is discussed. Man is fearfully and wonderfully made with a purpose (Ps. 139:14). Knowledge of great and mighty things is available by calling on the name of the Lord (Jer. 33:3). What divine genomic signature would exist if looked for? We see evidence of the hand of God in the genome, where rules and order are followed and signs of complex design exists.

Ontological—The nature of meaning in genomic information is discussed. What

is the implication if there is organized information in the genome? Organisms seek to maintain health and self-preservation. Cellular function seems to operate beyond simple programming and exhaustive instructions for every possible case. Actions appear to show intentionality that is not based simply on random information.

MIND SCIENCE

Saturday, 26 July 2014

3:30 PM

Paul the Apostle, Neuroplasticity, and the Renewal of the Mind

Thom Black

This presentation attempts to ask and answer a number of questions that might link Paul's understanding of the transformation/integration of the human with contemporary research in neuroscience. These questions include the following:

Where does Paul's concept of the human mind stand with regard to those of Greek, Hebraic, and early Christian thought of the middle first century? To what degree are these views similar to and different from one another?

What are the core principles that guide Paul's assertion that the human mind can undergo transformation and change? What makes this transformation possible and how does the individual pursue it?

To what degree do recent discoveries in neuroscience (specifically, the concept of Neuroplasticity) either support or refute Paul's assertion(s)? Would Paul have agreed that the formation of the "mind of Christ" in the individual would have its basis in the human brain's resilient architecture and ability to "reinvent" itself?

Saturday, 26 July 2014

4:00 PM

Evolving toward the Fall: Neural Plasticity and Original Sin

David L Wilcox

Could Neanderthals sin? What neural alterations would make possible a true moral choice? When and how did such a change occur? What is the meaning for the Fall?

Morality is a recursive cerebral function (TOM). The core of morality involves

building recursive complexity from love of self toward love of neighbor. Full moral awareness is recursive, knowing an act is "wrong," and being aware of that knowledge, before the act. This involves the background activity of the executive control system and the default network of the modern brain, and our uniquely slow, plastic, culture-driven neural maturation.

Cultural transformation may be driven by both environmental pressures (flexibility) and population densities (information feedback). Time and place? Most likely, coastal East Africa 150,000 years ago, the previous glacial maxima, before population expansion. Perhaps a small population, moved toward righteous maturity by action of God's Spirit, rebelled. "Adam" chose to reset God's moral standard, to redefine life and death, rejecting God's instructions. That action twisted cultural maturation, and by shaping neural maturation, twistedness was necessarily "inherited" and shaped our race.

Sin's Impact: *Guilt and Death*. H. Blocher states, "Adam's sin within the law made possible the imputation of guilt and judicial treatment to humans who sinned without the law. Thus, guilt and death came to all men, but as guilt for their own sins."

Propagation. Adam's sin warped cultural transmission in such a way that neural maturation necessarily follows his path. All humans mature within a state of sin, within which we freely chose to sin.

Sunday, 27 July 2014

1:30 PM

From Psyche to Sin and Redemption

Loren Haarsma

A variety of scenarios are being proposed for how we might best understand Genesis 2-3 in light of modern science (which points to God using evolutionary processes in creating humans and that our ancestral population was never as small as two individuals) and biblical hermeneutics (which indicate that literal-historical interpretations might not be best). I will map out several proposals, including Adam and Eve as recent representatives, as ancient representative-ancestors, and as symbolic literary figures. These scenarios agree on some basic theological points such as the goodness of God, human responsibility for sin, and the need for redemption in Christ, but give competing answers to some long-standing theological questions such as the following:

- How intellectually and morally advanced were the first humans who sinned?
- Does sinful disobedience require an

explicit command from God to have been violated, or does violating the promptings of conscience count?

- Did some humans live for a time in a state of fully developed moral righteousness, or is that a potential state humans might have achieved through obedience over time?
- Was sin unavoidable?
- Did disobedience damage human nature primarily in a single disobedient act (or pair of acts), or through an accumulation of many disobedient acts over a longer time?
- How is sinful nature passed to each generation?

I will discuss how the different scenarios lead to different answers and, conversely, how different answers to those questions push scholars toward different scenarios.

Sunday, 27 July 2014

2:00 PM

The Ethics of Justice and of the Atonement

Alfred Latham

In passing from hunter-gatherers (H-G) to sedentism, a shift arose in the process of justice. Among H-G, justice is often settled by elders with the complainant and the defendant facing each other. Due payback, whether by restitution or retribution, is seen as what is owed to the victim, and the intended aim is apology, forgiveness, and all round reconciliation.

The triadic structure is meant to prevent over-the-top revenge and evil-for-evil. But with publication of laws upon sedentism, the emphasis shifted. Justice became the property of the state and often the victim was left out. As Nils Christie observed, the victim lost ownership of his own process in justice. As with Hammurabi and Moses, the king was judge, as authorised by his deity, and he it was who called the offender to account for having transgressed God's laws, and so justice became formally more dyadic. Just as God called to account for transgression of his commandments so the reflex was to think that payback was due to God or to the justice system.

This presentation discusses the contrast between dyadic and triadic perspectives and their histories in society's treatment of criminal acts and in the Atonement for immoral acts. It is relevant that here in Canada and elsewhere restorative justice was initiated for reconciliation, and is exactly in line with the teaching of Jesus that sees us all of equal intrinsic worth.

Sunday, 27 July 2014 2:30 PM

The Problem of Altruism: Evolutionary Sciences and Neuroscience Versus Social Psychology and Theology

Chris Barrigar

Altruism is popularly understood to mean something like “giving of oneself without expectation of return or reward.” Various disciplines, however, do not believe that such altruism can exist. Neuroscientists are “disbelievers” because of the determinist implications of work by Libet and Wenger. Evolutionary biologists are disbelievers because of the presuppositions of kin selection theory, which reduce altruism to mere cooperation. Evolutionary psychologists are disbelievers because they consider altruism to be a cover for self-interested concerns of reproduction and survival. Collectively these scholars only believe in *self-centred altruism*. For Christians, however, genuine altruism is an important part of their moral worldview and character formation, the parable of the Good Samaritan being just one example. Can the existence of genuine altruism be scientifically defended in the face of these challenges from neuroscience, evolutionary biology, and evolutionary psychology?

This paper invokes current streams in neuroscience and social science, along with the author’s own philosophical arguments, as conceptual resources to refute each of these three positions and to establish the existence of genuine, or *other-centred*, altruism. Further, we see that other-centred altruism can be nurtured. Consequently, Christians can argue that altruism is a crucially important part of human character, and can deploy these conceptual resources to argue for the nurturance of altruistic character within public contexts such as education systems, justice systems, and public policy.

Sunday, 27 July 2014 3:30 PM

Strangers in Our Own House: Psychological Consequences of Our Alienation from Creation

Heather Looy

The power and myth of modern science is one of control over the mechanisms of nature. Through spreading industrialization, technological development, and urbanization, people particularly in Western cultures have become profoundly alienated from the rest of creation. Nature has become something that is “not us,” that has no *inherent* meaning or value, and is both a danger and a resource to be used and controlled.

Of many profound consequences of this alienation, I focus here on the psychological. Research is showing the critical importance of an active, respectful, and knowledgeable relationship with the rest of the natural world for healthy human physical, cognitive, and emotional development.

After reviewing this research, I discuss the implications of this work for understanding ourselves as *creatures* made for this planet, and for how we structure our communities and societies.

Sunday, 27 July 2014 4:00 PM

Pursuing Truth through a Social-Cultural Constructivist Framework

Scott Bonham

Constructivism has become an important framework for work in cognitive science and educational theory, drawing significantly from the ideas of the developmental psychologists Jean Piaget and Lev Vygotski. While Piaget tended to emphasize the individual’s experiences and physiological cognitive development, Vygotski gave greater emphasis to the social aspect of learning, the cultural context of the learner, and a dynamical relationship between learning and cognitive development.

In this talk I will describe the main elements of constructivism in the context of my discipline, physics education research, particularly emphasizing the social-cultural ideas of Vygotski. I will then discuss areas of congruence between constructivism and both biblical and scientific understandings of truth and knowledge. I will finally discuss ways that a social-cultural constructivist framework could help us to understand and address areas of tension between faith and science.

PHYSICAL SCIENCE

Saturday, 26 July 2014 10:15 AM

The Beginning of the Universe

Peter J Bussey

During the last century, it was found observationally that our universe began some fourteen billion years ago, in an event known as the Big Bang. This discovery has put new force into the traditional argument that God is to be identified as the First Cause of the Universe, also known as the “Kalam” argument.

However, there are proposals that the Big Bang was itself preceded by earlier cosmological phases which could even extend infinitely far back in time. How valid are these suggestions? Do they affect the First Cause argument? In this talk I will survey this area of cosmology and discuss what theological implications may usefully be drawn.

Saturday, 26 July 2014 10:45 AM

Is the Observable Universe a Biased Sample?

Elliot Nelson

Small perturbations in the matter density in the early universe set the initial conditions for the CMB (cosmic microwave background) and for the formation of a large-scale structure through gravitational attraction. The statistical properties of these observables may therefore carry information about the high-energy physics of the early universe that generated the initial conditions. We only observe a finite subvolume of the universe, and inflation points toward a volume exponentially larger than the region we can observe, so we must ask whether statistics observed in our volume are a representative sample, or systematically biased due to our local cosmic environment. I address this question on a statistical level, summarizing my ongoing PhD thesis research.

For initial conditions where perturbations on different scales are coupled, statistics characterizing the initial conditions, such as the amplitude of the perturbations, can vary spatially due to a coupling to fluctuations on very large scales. This leads to a statistical “landscape” in which observations (such as galaxies per unit volume) made in any finite volume may be biased in comparison to average statistics, potentially limiting our ability to access global statistics and thus early universe physics.

In light of the theme of the conference, I ask how our limited access to the universe may relate to Christian theology, and to our current “observational access” to God’s purposes for creation. Just as we must ask whether our observational vantage point gives us a *typical* sample of the larger universe, Christian theology might ask similar questions about our present position in God’s story. Our limitation to a finite cosmic habitat may also reveal something about the God who created this scenario.

Saturday, 26 July 2014 11:00 AM

**High School Curriculum—
“The Crossroads of Science and Faith:
Astronomy with
a Christian Worldview”**

**Gladys Kober, Susan Benecchi,
Paula Gossard**

Four years ago, at the 2010 ASA Annual Meeting, Ashley Zauderer and I presented a vision to develop high school curriculum to teach “Astronomy with Scientific Rigor and a Christian Worldview.” We are delighted to announce that the project is nearing completion due to much hard work and invaluable input from the professional astronomy Christian community. The motivation that inspired our work was to equip and to prepare Christian high-school students for the challenges they will face at secular universities. Surveys show that more than a fourth of Christian students lose or abandon their faith during their college years. While reasons for that may vary, perceived conflicts between science and faith play an important role.

The textbook is targeted to the Christian homeschool community, but could also be adopted in Christian schools. It consists of two parts: (1) the interaction between science and faith, and (2) astronomy as a discipline. Part 1 includes exercises for discussions between parents and their children, or among homeschool groups/classes that aim to mature the students in their thinking on science/faith issues. The underlying goal is to train them to give sound reasoning for their beliefs. Part 2 includes astronomy exercises to challenge students mathematically and scientifically. It is also peppered with interviews and testimonies from professional astronomers who are committed Christians to encourage students of the role God has for Christians in science with an integrated worldview.

We strove to write a scientifically rigorous textbook with the goal of strengthening and encouraging the faith of students. Our new challenge is to distribute the material and to organize workshops to reach the Christian community.

Saturday, 26 July 2014 11:15 AM

Panel Discussion

**Our Universe: From Nothing? Unique?
Fine-tuned? Designed? Created?**

Panelists: **Peter Bussey
Robert Mann
Don Page
David Wilkinson**
Moderator: **Colin Humphreys**

Saturday, 26 July 2014 1:30 PM

**Evidence for God from
Some Crucifixion Events
Colin Humphreys**

Some remarkable events at the Crucifixion, reported in the Bible, are being confirmed by modern science. These explanations then provide new scientific pointers to God. This talk will discuss three of these events. I have worked with an astrophysicist, Graeme Waddington, to reconstruct Jewish calendars (which were based on observing the moon) in the first century AD. These calendars provide a framework in which to fit the events of the last week of Jesus. All the evidence points to Jesus dying at about 3 pm (the ninth hour, Matthew 27:46) on Friday, April 3, AD 33, at precisely the time (3 pm, Josephus) and the day the first Passover lambs were slain that year. What amazing timing to arrange that Christ, our Passover lamb, should be sacrificed at this precise hour and day.

Peter in his Pentecost speech, just seven weeks after the Crucifixion, refers to recent events as having fulfilled the predictions of the prophet Joel. An interpretation of Peter’s words, supported by other ancient texts, is that the “moon turned to blood” (Acts 2:20) and that this occurred on the evening of the Crucifixion. Astronomical calculations show that there was a lunar eclipse visible from Jerusalem at moonrise on Friday, April 3, AD 33. For this eclipse to have occurred at this time, it must have been built into the original plan of God from before the creation of the Universe.

The Gospels record a substantial earthquake, and its after-shocks, at the time of the Crucifixion. It rent the curtain of the Temple, it opened graves, and it rolled away the large stone at the tomb of Jesus. I am working with a geologist, Jefferson Williams, to date this earthquake from annual varves in Dead Sea and River Jordan sediments. It is already clear that there was a substantial earthquake in the period AD 26–36. We are working to reduce the error bars. Thus recent science is producing new evidence for the truth of the Gospel records and the evidence points to the existence of a God who planned some of the Crucifixion events in detail.

Saturday, 26 July 2014 2:00 PM

**The God of Samson—or Delilah?
C M B Biggs**

Objection: In the mainstream of believing scientists in the UK, the current consensus is that God designed the laws of physics and

used a scientifically transparent process of evolution to generate the current diversity of biological life. It is argued that God does not intervene to override the laws of physics in any way, but that, even today, God acts only within quantum uncertainty or chaos theory to bring about miracles of timing only. In my view, however, this approach limits the action of God in a way that does not fit the biblical evidence, presenting a false picture of supernatural beliefs which, in Dawkins’s words, “miserably fails to do justice to the sublime grandeur of the real world.”

Answer: I revisit the argument of Thomas Aquinas, namely that what God wills is what happens, and consider Whitehead’s and Coakley’s argument that God acts creatively in time as an improvising designer. I propose that the whole of nature is an expression of God’s character and that God not only watches developments with interest but also interacts with all creation in time and space and in a variety of modes. I present two “science parables,” namely neutron diffraction and X-linked genetic disorders, in an attempt to provide models for freedom and providence over both evolution and human will, and show that, by providing scientific parallels for our illumination, God illustrates his way of thinking on suffering, sacrifice, and redemption. The result is a more unapologetic theodicy than is normally offered.

Saturday, 26 July 2014 2:15 PM

**Noah and the Voice of Science
David Robbins**

Genesis portrays a global flood covering the highest mountains and destroying every living land creature. Geological discoveries undercut the premise well over a century ago. Nor is there evidence from scientific fields, and no indisputable Ark evidence is known. Is “Noah” just a story, or is another view possible?

Catastrophes affecting PPN and Neolithic peoples in the Holocene are not a good match. Given that civilization development in the Fertile Crescent seems continuous, historical floods seem local or regional. Headline discoveries of Burekle Crater and Madagascar chevrons spurred speculation of mega-tsunamis and Flood connections. But Oman is an effective barrier, and Holocene sediments in Iraq lack tsunami deposits and glauconite.

Translation of ancient Sumerian texts and discovery of ancient flood sediments provide compelling parallels to Genesis

PHYSICAL SCIENCE

given license for ancient editorial errors or paradigms. A major flood inundated ancient Shuruppak, between the Euphrates and Tigris, around 2900 BC. Records link Noah, and ancient epics say he floated down the Euphrates on a barge as far as modern-day Bahrain, a distance of ~450 miles.

Considering clustered, worldwide flood and fire catastrophe “myths” and an Indian Ocean meteor strike contributing rain possibly co-occurring with flood deposits, the real story of Noah may be emerging. The picture is not complete. Noah has been both revered and disparaged with tension between biblical teaching and the known world. But the Noahic lessons of righteousness, judgment, and mercy are central to the Christian faith and instructional to a sinful world. A reconciling voice encourages seeking.

Saturday, 26 July 2014 **2:30 PM**

Constructive Integration of Science and Scripture

Hugh Ross

Is a literal, inerrant interpretation of Genesis 1 and 2 defensible in light of the latest scientific findings? This presentation discusses the *constructive integration* approach to resolving apparent contradictions between the facts of science and the words of the Bible. When Genesis 1 is understood as a chronology of creation and Genesis 2 as a condensed, nonsequential summary with human beings in view as caretakers of a good creation, then the anomalies disappear. The latest scientific discoveries firmly establish both a literal sequence of creation events in Genesis 1 and a sense of purpose for human beings as divine image-bearers and the crown of creation in Genesis 2.

Sunday, 27 July 2014 **1:30 PM**

Exoplanets, Creation and Incarnation: Christian Faith Engaging with SETI

David Wilkinson

The discovery of exoplanets has grown rapidly in recent years leading to a significant contribution to the scientific debate and a much more dominant shaping of the public attitude to the search for extraterrestrial intelligence. For a number of influential commentators, the discovery of such intelligence would have negative implications for Christian faith.

This paper reviews the current scientific debate, both its advances, its future

prospects and its uncertainties. In reviewing also the history of the fruitful dialogue between Christian faith and speculation about other worlds, it suggests that SETI poses interesting and helpful questions for Christian doctrines of creation, incarnation and redemption. In fact, a thoroughly biblical view of the Creator God encourages scientific work on SETI and an openness to the extravagance of creation.

Sunday, 27 July 2014 **2:00 PM**

Physics at the Theological Frontier

Robert Mann

I discuss five major points of contact in the relationship between physics and Christian theology: typicality, plurality, reduction, quantization, and eternity. These ideas influence thinking at the forefront of physics today, and have interesting implications for Christian faith. I shall outline the meaning of these ideas, relevant recent experimental and theoretical developments, and some new questions for theological exploration and reflection.

Sunday, 27 July 2014 **2:30 PM**

Global Climate Change and Atmospheric Ozone Depletion: Understanding and Perspective from a Christian Physicist

Qing-Bin Lu

In the world scientific problems, it might be seen as a mystery that despite increasing CO₂ levels, observed global mean surface temperature (GMST) has strikingly stopped rising or even showed a declining trend since about a decade ago. Another mystery drawing less attention is that no clear trend in recovery of the Antarctic ozone hole has been detected, while the Montreal Protocol has led to the decline in atmospheric level of chlorofluorocarbons (CFCs, the major ozone depleting molecules) since the turn of this century.

As recently agreed by climate researchers, there is a striking discrepancy between observed and model-simulated GMST trends since 1998. The newest IPCC Report acknowledged that the possible cause of the observed GMST trend hiatus might be a combination of “internal climate variability,” “missing or incorrect radiative forcing,” and “model response error.” This talk will discuss possible solutions to the above two mysteries. It will be focused on the cosmic-ray-driven electron-induced-reaction (CRE) mechanism of halogenated molecules for the formation of the polar

ozone hole and the warming mechanism of halogenated molecules for recent climate change. My recent in-depth analyses of comprehensive measured datasets and theoretical calculations have further shown that both mechanisms not only provide new fundamental understandings of the ozone hole and global climate change but also have predictive capabilities superior to the conventional models.

Monday, 28 July 2014 **10:15 AM**

A Superposition of Quantum Controversy: The Ongoing Debate over What Aspects of Quantum Mechanics Are Controversial

Matthew Huddleston

There exists a general consensus among physicists that the *practical* aspects of quantum theory are as unambiguous as any physical theory we use. Simultaneously, it is clear that the proper *interpretation* of quantum theory is very ambiguous and open to a variety of explanatory approaches. However, hidden within this uncomfortable, though accepted, state of affairs are a number of specific questions for which decades of discussion have not completely established under which of those two categories they fall. Thus, periodic debates emerge between experts in the field as to what aspects of the theory are, in fact, debatable.

In this study I examine specific questions that have historically introduced this dilemma of “questionable controversy.” For example, some very practical and widely used techniques, such as renormalization, may satisfactorily solve one set of problems while possibly introducing new unsolvable problems. Other examples are concerned with deciding which descriptive physical aspects of quantum theory are unambiguously indispensable to the theory itself. In each case, I present alternative “expert” opinions that are in direct contradiction with each other. Hopefully, this talk will serve to elucidate what parts of quantum theory are, in fact, subject to ongoing debate, whether they deserve to be or not.

Monday, 28 July 2014 **10:45 AM**

The Trouble with Models

G Wayne Brodland

Although the importance of models to the development of science is well established, it is less widely recognized that they serve a central role in the process of thinking,

in language formulation, in making sense of the experiential world and in the structuring of organized systems of thought, including systematic theologies. While models are essential to all of these largely organizational processes, they can give rise to unexpected problems and can even obfuscate the search for truth.

The presentation will show how computational modeling of cell and tissue mechanics and its application to embryogenesis and birth defects was on occasion aided by models and at other times hindered by them. It will then consider whether the lessons learned might aid in the evaluation of, or otherwise inform, the sometimes carefully developed and at other times spontaneous models that underlie some of the other above mentioned areas of endeavour.

Monday, 28 July 2014 11:15 AM

What Violations of the Known Laws of Physics Do You Expect?

Greg Voth

Sean Carroll has provocatively claimed that “The laws underlying the physics of everyday life are completely understood.” This type of claim is often dismissed as positivism or as blindness to the many things we do not understand. Such dismissals come from nontheist scientists and philosophers as well as from theists. However, it is my perception that a version of this argument often lies behind claims of empirical evidence for naturalism. It also seems that Christians too often dismiss this argument rather than engaging it.

I will attempt to formulate a charitable version of the argument for the practical completeness of the known laws of physics. Then I will explore critical responses by Christians and non-Christians with a focus on which everyday phenomena have been proposed to include violations of known physics.

One of the major problems in critiquing or defending the argument is that there are many aspects of everyday life that we clearly do not understand, for example, turbulence or economic systems, but these are essentially all cases in which we can't solve the equations to determine the predictions of the known laws of physics.

SCIENCE/TECHNOLOGY IN SERVICE TO THE POOR

Saturday, 26 July 2014 1:30 PM

Is Success a Technicality? Suggestions from Two Case Studies in Experimental Hand Transplantation

Emily Ruppel

The world's first two successful hand transplants were performed by competing medical teams in Louisville, Kentucky, and Lyon, France. While the first, by the French team, was ultimately unsuccessful (the patient claimed disgust with the outcome and requested amputation approximately one year out), the second, by the Louisville team, has survived over thirteen years with high patient satisfaction. Comparing the narratives and timing of these surgeries may lead one to question whether the French team was willfully negligent in evaluating their patient's ability to make an autonomous decision to participate due to his extreme enthusiasm for the innovative procedure and, perhaps, desire for media attention. It is clear from interviews with doctors and their own written accounts that the patient's duplicity on various issues before surgery should have been a contra-indication for his candidacy as a groundbreaking transplant patient.

These high-profile case studies open up questions about how we define success in medicine—especially nonlifesaving elective transplants. The French team is considered to have achieved the world's first successful hand transplant, yet if no other hand transplants had been performed in the time it took their patient to grow disgusted with the limb and request amputation, how would the media and medical community have reacted? Might this outcome have stymied interest in a field that has ultimately led to full and partial face transplants, whole arm transplants, genital transplants, and more? How does the Christian value of humility apply to questions of ethics in experimental medicine?

Saturday, 26 July 2014 2:00 PM

Banana Plants: Using Waste to Clean Water

**Colin Gregg, Hunter Schroer,
Joshua Weed, William Jordan**

Improving the economies of developing nations is difficult. As Christians we are

called to help others, but how to do so in this context is not simple. Many developing countries' source of external finances comes from using their depleting, but valuable, natural resources. A more sustainable method is to help them utilize renewable resources more effectively. One example of this is developing products for things that are not currently being used. We are interested in examining how parts of banana plants can be used productively.

The goal of this project was to study and compare the bacteria content and adsorption of heavy metals, namely lead and calcium, in water using treatments of natural banana pseudostem, processed banana pseudostem powder, and a purchased ceramic filter.

The banana pseudostem has shown to be extremely effective at removing lead from contaminated water. Not only is it faster at purifying large amounts of water than the commercially available ceramic filter, it is also free to the banana plant owner as it comes from the waste of the plant. Any consumer who is already boiling their water to remove harmful bacteria would simply need to add ground up pseudostem to the water prior to boiling, in order to reduce extremely harmful lead content to safe levels. With some future research in the area, the pseudostem could easily become an incredibly inexpensive alternative for water purification in developing countries.

Saturday, 26 July 2014 2:15 PM

Lessons Learned in Helping the Poor to Use Agricultural Waste: The Case of the Coconut

**Walter L Bradley, Don Byker,
Stephen Freed**

For ten years, I have been engaged in seeking to help 11 million poor coconut farmers to increase their \$500/yr income by creating technology that utilizes coconut shell and coconut fiber from the husk in polymeric composite materials. Creating the technology is the easy part of this process.

This presentation will provide a wide-angle view of the many challenges to creating and commercializing technology in such a way that it can be transformational for a village.

My previous work with Whole Tree Inc./ Natural Composites as well as my current work with Dignity.com will be used as case studies from which important lessons may be drawn.

Saturday, 26 July 2014

2:30 PM

Teaching College-Level Science in West Africa

James Rynd

Although personally very rewarding, teaching science in West Africa presents unique cultural, theological, conceptual, and technical challenges. This paper will discuss what the author has experienced in this regard during three semesters of teaching a variety of physical science and math courses at a Christian college in Liberia, West Africa. Liberian students suffer from having any real substance in their secondary school science and math courses. For example, few students have ever had a laboratory experience. But now the Liberian government is pushing for colleges to train qualified teachers in the sciences and math, which our school is attempting to do. The particular challenges for Western professors are:

1. *Cultural/Theological*: Students, even though Christians, still see the world through the eyes of their animistic heritage, often viewing natural phenomena as a result of supernatural forces rather than natural processes. Helping students see the predictability of natural phenomena through the introduction and use of laws and theories enables students to recognize the value and practicality of science and the underlying biblical view of nature.

2. *Conceptual*: Quantitative reasoning is not part of their normal experience. For example the goal of my beginning courses in math (algebra) and physical science soon became helping students understand and use a ratio (e.g., conversion factors, density, speed). This is where teaching methodology becomes the major factor.

3. *Technical*: While we were able to import some basic supplies and equipment, there are few if any internal resources for providing a valid laboratory experience. This forces one to be innovative to make good use of what is at hand. For example, on our campus and at nearby enterprises, there are a variety of activities which provide resource for scientific explanations and laboratory experiences, (e.g., electrical devices, generators, mining and agricultural operations).

Teaching in this environment can be a very rewarding experience for both student and faculty. If you have ever desired a genuine cross-cultural and unique spiritual growth experience, you might want to consider teaching in Africa.

Monday, 28 July 2014

10:15 AM

Personal Lifestyle Implications of a Globally Just and Sustainable Future

David Larrabee

Scientists and engineers are in a unique position to understand the implications of a global shift from fossil fuels to a more sustainable energy source. Consequently, we must start implementing changes in our lifestyles consistent with the scriptural demands of justice, and call upon others to do the same.

The current global annual energy budget is almost 550 million Terra Joules (TJ) per year, or about 0.08 TJ per person per year, compared with about 0.3 TJ per person per year in the United States. Energy use has been correlated with the quality of life in a country by using the Human Development Index (HDI) maintained by the United Nations. The curve of HDI vs energy usage rises quickly and flattens above about 0.1 TJ per person per year. Globally we are faced with the twin challenges of increasing the standard of living in much of the world and decreasing our dependence on fossil fuels. Significantly increasing the world's supply of energy over the next 50 years using renewable energy, while at the same time phasing out fossil fuels, is an unlikely scenario. The only workable scenarios include a significant reduction in the consumption of energy by the US.

Given our biblical mandate to love our neighbor and to care for the poor, this paper will explore the implications for our individual and collective lifestyles.

Monday, 28 July 2014

10:45 AM

Would God Frack?

Bruce Beaver

Br. David Andrews, of Food & Water Watch, raised this question in a recent documentary on the ethics of fracking. Br. Andrews argues that his God, being a God of justice, truth, honesty, and integrity, would not frack. Br. Andrews suggests that fracking is bad for communities, animals, and the environment since it can "spew toxicity everywhere."

My view of God is similar to that of Br. Andrews; however, I believe that God intends us to frack in a sustainable manner. I believe as Christians we are all called to do the work necessary to seek the truth in all aspects of life—even with fracking. I believe that sustainable fracking is one of many components necessary to realize

the church's vision of integral human development. As Catholics we are called to seek the common good for our neighbors, both domestically and internationally. That requires the development of clean, cheap energy for development.

The World Bank points out that there are 1.2 billion people in the developing world still without electricity. At the current rate of World Bank financed (green) energy development, it will be more than 50 years until all these people get electricity. I believe that sustainable fracking provides the most rapid way to sustainably meet global electricity needs.

This talk will briefly review projected global energy needs and show how sustainable shale gas development is the best path forward economically and environmentally.

Monday, 28 July 2014

11:15 AM

Cookery Lessons: An Engineer's Observations on the Role of Participation in the Uptake of Improved Cook Stoves in Sub-Saharan Africa

Mike Clifford, Oluwakemi Akintan, Temilade Sesan, Charlotte Ray, Sarah Jewitt

It is estimated that 2.7 billion people worldwide rely on burning biomass fuels such as wood, charcoal, and animal dung, and many cook on open fires inside their homes. This way of cooking is fuel inefficient and dangerous with women and children exposed to harmful levels of wood-smoke, a major cause of lung disease and early death. Traditional "open" cook stoves are also estimated to contribute around a third of global carbon monoxide emissions, with the black carbon particles and other pollutants in biomass smoke thought by many to exacerbate climate change.

Often the engineer's approach to this problem is to reach for the thermodynamics textbook and to set about designing cook stoves with higher efficiency that can be mass-produced as cheaply as possible. However, this techno-centric approach ignores many subtle user needs and preferences.

In this presentation, lessons learned from cook stove projects in Sub-Saharan Africa are shared and discussed. The importance of understanding all of the barriers to the introduction and uptake of improved cook stoves is emphasised.

SCIENCE AND THEOLOGY

Saturday, 26 July 2014 10:15 AM

Galileo, Cosmological Mutability, and Its Theological Implications Dennis Danielson

As is well known, the Aristotelian/Ptolemaic cosmology swept away eventually by Copernicanism in the seventeenth century presumed two distinct realms or storeys: the lower, sublunary realm of the universe, occupied by us mortals and characterized by “alterations, mutations, [and] generations”; and the superlunary, upper storey, in which all things are “unalterable, immutable, impassible.” Of course, God and eternity were associated with the latter, and for more than a millennium Christians were taught to aspire to an afterlife of sharing these unchanging characteristics.

But from Tycho’s discovery of the supernova in 1572 to Galileo’s account of sunspots in 1612, it became ever clearer that the superlunary realm is *not* immutable. And if it isn’t, then what kind of “up there”—what kind of eternity—are Christians to imagine? Doesn’t the new cosmology of Copernicus and Galileo, in fact, force a reversal of values according to which the universe *beyond* Earth must be subordinated to life here *on* Earth? As Galileo’s character Sagredo argues in the *Dialogo* (1632), isn’t an impassible and immutable realm, in fact, as unappealing and nondynamic as a sterile marble statue? If that’s the case, then what does acceptance of a changing cosmos beyond Earth imply for notions of heaven, eternity, and eternal life? I will aim to place this aspect of cosmological reflection into dialogue with practical issues of Christian theology.

Saturday, 26 July 2014 10:45 AM

Texas Biology Textbook Smack Down Ide Trotter

This presentation is a follow-up to my 2009 ASA paper covering the Texas State Board of Education TEKS standards and the fight over biology standards. I was the reviewer of Pearson’s *Biology* by Miller and Levine that became the focus of interest in the application of Texas’s standards this year.

The presentation will compare the current edition with both the prior edition and Pearson’s AP biology text by Campbell and Reece. Several of the criticisms identified by my initial review will be presented along with the publisher’s denial, my rebuttal, and

the comments of a third reviewer selected by the State Board of Education to resolve the matter. It will conclude with an overview of the issues that should apply in matters like these as well as some contrasting opinions.

Saturday, 26 July 2014 11:00 AM

Time to Abandon Aristotelian Approaches to Genesis? Alan Dickin

During the Enlightenment, the scientific method was developed as an empirical approach to the acquisition of knowledge, by rejecting the Aristotelian notion that the nature of reality could be determined by logical deduction alone. But by insisting that Genesis should be interpreted in a scientific vacuum, many theologians are perpetuating an Aristotelian approach to biblical interpretation against reliable empirical evidence.

Relinquishing a few of these ill-founded beliefs will allow an improved understanding of the true nature of biblical origins. For example, abandoning the unscientific belief that all of humanity is biologically descended from Adam and Eve allows a more profound understanding of their roles as the ones first called to spread the spiritual image of God throughout the earth. Abandoning the unscientific belief that only Noah’s family escaped annihilation in the Flood allows a more profound understanding of Noah’s role as the one called to preserve the revelation of God to humankind during a major natural disaster. Abandoning the unrealistic belief that building the Tower of Babel was a nonreligious act allows a more profound understanding of the threat of false religion to the worship of the True God in an ancient multicultural society. Finally, abandoning a belief that the call of Abraham came in a spiritual vacuum leads to a new understanding of how the story of creation and humanity’s early history was preserved within a faith community devoted to calling on the name of the Lord, rather than through the mythology of pagans.

Saturday, 26 July 2014 11:15 AM

Creation as Gift Event: A New Perspective for Evangelicals? Doug Hayhoe

Sustainability and stewardship are often emphasized in science curricula today, and most evangelical science educators like myself are happy about this. The presence of these concepts in the Old Testament was made clear as far back as Calvin’s commentary on Genesis 2:15, and recent

examination of the ecological perspective embedded in the meta narrative of scripture shows that they are present in the New Testament also.

Some non-evangelical scholars take a different approach, however, considering the environment primarily as a gift event. In their work, they are responding to Jacques Derrida who wanted to make gift giving not only unconditional and undeserved, but so completely nonreciprocal that there are no responsibilities even of thanksgiving or gift recognition. Otherwise, he says, it ceases to be a true gift. Primavesi, for example, notes that all species on Earth continuously and unconsciously receive the gift of life from each other. Any ecological destruction that occurs, she writes, is because one species, humans, think they are special. Manopoulos proposes that we oscillate between enjoying creation without thinking about it, like children on a playground, and, alternately, being fully aware of the need to reciprocate and look after it.

Few evangelicals focus on creation as gift event, although de Witt comes close, in his outline of “the seven provisions of creation.” The New Testament, however, uses the words “to give,” “gift,” and “grace” many times to describe God’s nature and activity toward us. So what perspective should recipients of such grace have toward God’s creation?

Saturday, 26 July 2014 1:30 PM

What Americans Think and Feel about Evolution Deborah Haarsma and James Stump

We will present a summary of the latest data on how Americans view evolution (and how strongly they hold those views) for the general population, for scientists, and for Christians of various denominations.

Is the landscape as polarized as it seems? What methods are effective for promoting genuine dialogue and informed decision-making? What particular issues drive a person’s decision about evolution?

We will include examples from BioLogos programs and resources.

Saturday, 26 July 2014 2:00 PM

The AAAS DoSER-Rice University Evangelical Perceptions Project Paul Arveson, Jennifer Wiseman, Elaine Howard Ecklund

In 2013, the AAAS Dialogue on Science Ethics and Religion Program (DoSER) partnered with Elaine Howard Ecklund

of Rice University to conduct a survey of Americans' perceptions of science and religion. This effort was intended to examine these perceptions in more depth than previous surveys. Over 10,000 people were surveyed online, and 315 in-depth interviews were conducted. Initial results were reported at the AAAS Annual Meeting in Feb. 2014. About 23% of the sample self-identified as Evangelical Protestants. When asked whether they felt that science and faith are in conflict, about 30% of evangelicals agreed, but 48% said that each can be used to support the other in collaboration. And among evangelical scientists, 72.5% affirmed a collaborative relationship between science and their faith. Additional questions probed how evangelicals conceptualize the nature, purpose, and abilities of science.

Another ongoing part of the project is to conduct dialogues between evangelical pastors and non-evangelical scientists at three locations around the US. These dialogues will include over 20 participants at each location, using an all-day facilitated workshop to examine perceptions and concerns. Values that may be shared by all participants will be identified and used to develop a basis for collaboration on practical problems.

This presentation will report on preliminary findings from the survey and from the workshops, illuminating perceptions of evangelicals toward scientists and science, and of scientists toward religious communities, as an important step in improving understanding and dialogue.

Saturday, 26 July 2014 2:30 PM

Attitudes to Science and Faith among UK Senior Christian Leaders

Rebecca Bouveng and David Wilkinson

Science and faith are often perceived as being locked in conflict with one another, and people of faith as being more averse to science than others. Our study examines the views and attitudes to science, and science-faith issues, among a particular group in a faith community: senior UK Christian leaders, who through their strategic roles carry influence on views and values both within their organisations and in the wider society. This is the first in-depth study of its kind.

We show how, contrary to the presumptions of New Atheism, a vast majority of the senior leaders to whom we spoke do not appear fearful of science, do reject

the conflict model of science and faith, and also reject biblical literalism and creationism. However, we highlight three broad areas of *tension* in the way these leaders relate to science and science-faith issues. These tensions concern *science in popular discourse*, particularly around the aggressively anti-religious "scientism," part of a wider secularising discourse; ethical tensions around *the applications of science*, reflecting the wider arena of society and the public engagement with science; and finally the theological tensions around *the implications of science for personal Christian faith*.

Our study explores how the interviewees present and navigate these tensions, and we suggest that some of the popular metaphors for conceptualising science and faith—for example, science answers "how" questions and religion is concerned with "why" questions—may inadvertently be used as strategies of avoidance of grappling with the difficult questions of science and faith.

Saturday, 26 July 2014 2:45 PM

Against the Tide: The 20th-Century Struggle for an Evolutionary View of Creation

Christopher M Rios

The twentieth-century evangelical engagement with science was dominated by the creation-evolution controversies. Convinced that Darwin's theory threatened the foundations of both the church and Western culture, a small but committed group of Christians launched a series of efforts to undermine evolution and deny fundamental scientific principles.

During the 1970s and 1980s, these ideas prompted a movement that put much of the church at odds with mainstream science and seemed to define *the* Christian view of the issues. Yet Christians have never unanimously opposed evolution, and during this same period, growing numbers of evangelical scientists worked to stem the "creationist" tide. Represented in large part by the American Scientific Affiliation and the Research Scientists' Christian Fellowship (today Christians in Science), these figures sought to restore peace between Christianity and science, especially evolution, and to defend an evolutionary view of creation.

This paper will reflect upon some of the most important issues and events in the effort to develop the idea known as *evolutionary creationism*.

Sunday, 27 July 2014 3:30 PM

Doubt in Science and Faith **Keith Miller**

In popular discussions and debates on science and religious faith, it is commonly assumed that faith is founded on personal certainty whereas science is based on skeptical inquiry. "To have faith" is almost synonymous in popular conversation with "to believe despite the evidence." The scientific community, on the other hand, presents its conclusions as tentative and subject to revision based on evidence. I argue that this perceived contrast between science and religious faith is misleading and drives yet another unnecessary wedge between these two important paths to pursuing truth.

Scientists proceed with limited knowledge and evidence, and must recognize uncertainty. The theoretical frameworks that guide scientific research and exploration of the natural world are not static but evolve with new observations and new philosophical perspectives. Science is rooted in history and takes place within a broad, diverse community that provides a necessary corrective.

Similarly, religious faith is accompanied by doubt and uncertainty. We must question our theological assumptions and commitments in order to avoid serious error. One important role of the global Christian community is to provide correction—to challenge individuals and local faith communities to reevaluate perspectives and positions. Our faith is also molded by our experience in the world. Revelation is progressive and inextricably intertwined with the history of God's people. Furthermore, Christian theology is not static, but has evolved in response to historical events and new discoveries, including those in the sciences. Like science, faith is open-ended and unfinished.

Sunday, 27 July 2014 4:00 PM

Signs and Wonders in the Bible— What Is Their Purpose? **Hugh Reynolds**

Is it legitimate to look for "signs" of God's activity? Claims that science leads to atheism because of a lack of documented supernatural "signs" need to be challenged. Here, a brief examination of the ways signs are used in scripture is undertaken, in order to understand better what role they can play in Christian faith and apologetics today.

Working definition of a "sign": something recognised as being highly unusual and

unexpected that can be interpreted as having some spiritual significance. Whilst including “miracles” (events not compatible with known science), scriptural use is much wider.

In the New Testament, signs largely relate to Jesus. Many references in the Old Testament refer to the Exodus. John’s gospel is largely built around signs, where there are parallels with Exodus. Our Lord’s use and description of signs depended critically on the audience. Some of Jesus’s strongest condemnation was directed at those demanding a sign (Matt. 12, Matt. 16, Luke 11)—where his death and resurrection were the “only” sign that would be granted. But many other signs were to elicit faith in Christ (John 20:31).

While authenticating true prophets, signs can also be worked by false prophets and by Satan himself. Signs, therefore, are not cast-iron proofs. God has given us the dignity of choice, and people can choose to ignore them. And for the hostile, the death and resurrection of Christ is the only sign that really matters.

Sunday, 27 July 2014 **4:15 PM**

Holding the Healthcare Giant in Christ

Maria A Hernandez

All things hold together in Christ when you are a praying scientist applying all you know to improve quality of life for one person, one family, and one community at a time. We are in the midst of the greatest challenges in healthcare which affect us all! Healthcare leaders, thinkers, advocates, and professionals of all sorts are needed, especially those who allow their faith in Christ to permeate everything they do—working, educating, reaching out to establish the types of collaborations that are needed to make it succeed.

All things held together in Christ in the case of one person (KR), one family (mine), and one community (pharmacy educators, pharmacists). This presentation will discuss one case of cardiac arrest poorly addressed in a rural Georgia city, the mandate first to do no harm, ethical dilemmas faced along the path of decision making, and the progress of a patient that some in the medical field say should be in the grave right now. I will discuss how this patient (KR) went from being dead for 13 minutes, in an ICU for 3 weeks, in a nursing home for 5 months, and into my care for the last 3 years, and how my chemistry background, my experience as a pharmacy educator, and the support of a loving and praying family

all came together in Christ to succeed as we have. I will also present my vision for greater participation of pharmacy students and new generations of pharmacists in healthcare.

Monday, 28 July 2014 **10:15 AM**

A New Eclipse of the Biblical Narrative: Biblical Interpretation in Scientific Thinking

Christopher Waks

In our current culture, it is often understood, that faith, and in our case Christianity, and science are diametrically opposed. As science has progressed, it has been difficult for Christians to reconcile believing in scientific progress while faithfully being confessing Christians. I wish to propose a new way of understanding the faith and science relationship that no longer sees them as two spheres in tension, but a dialectical relationship of mutual reciprocity.

To do this I will begin by looking at the development within biblical interpretation. Examining modern thinkers such as Kant, Schleiermacher, Strauss, and Bultmann will help us see the way in which biblical interpretation changed in such a way that caused it to come into tension with scientific thinking. This examination will be beneficial because the effects that these thinkers had vis-à-vis contemporary biblical interpretation in light of science are often not discussed. Moreover, this historical analysis will set the context for my paper in thinking about how we can best view scripture in our scientific culture, and in doing so will return us to a model that looks similar to that of the early church fathers and mothers. Ultimately this can set the proper foundation for further dialogue between faith and science, one in which science and faith are constantly in dialogue with each other yet never determining the one another.

Monday, 28 July 2014 **10:45 AM**

“Loving Wisdom”: Philosophy as *Philosophia*

Daniel W Rüdissill

Since at least the time of Husserl, epistemology has been afforded primacy in the field of philosophy over and against ontology. This caused philosophy to become *philognosia* (love of knowledge) rather than *philosophia* (love of wisdom). Inasmuch as philosophy has gotten away from wisdom and has focused on theories of knowledge, this change has contributed

to the problematics of the science-religion debate. Because the debate has for so long been conducted by opposing groups, each of which claims to have “the facts,” it is knowledge which has been debated. This paper will suggest that if one reframes the debate in terms of ontology rather than in terms of epistemology, the debate will turn into a truly fruitful discussion; this discussion ought to be open to other perspectives outside of the traditional “creationist vs. evolutionist” framework.

Monday, 28 July 2014 **11:15 AM**

Socrates’s Helpful Diagnosis of His Creationist “Preference” and Modern Science’s Theistic Cure

Fr Hugh MacKenzie

In the *Phaedo*, Plato attempts to prove that the soul has an eternal and good destiny. The final stage inaugurates Socrates’s famous “second-best voyage” which is presented as a hard-won fruit of Socrates’s philosophical journey as well as his last earthly discussion, just minutes before his execution.

In both his “preferred” and “second-best” journeys, he is trying to show that the soul can control the oppositional tendencies of the realm of elemental change. Whilst the former fails and deeply disappoints Socrates, I will argue, against a scholarly consensus, that Plato outlines success criteria. These concern understanding the limits of the metaphysical “necessity” (i.e., that which needs no explanation) which arise from the primeval chaos. These criteria are applied in the *Timaeus*, which still fails, but less dramatically. In the *Laws X*, Plato downplays elemental necessity and seems to make even more progress. I will argue that the proper nonreductive interpretation of modern science achieves something similar.

Socrates’s key illustration for this argument is his own decision to stay in Athens to be executed. This has instantiated justice. He intuitively that this overlays his body’s elemental necessity but scholars have missed the significance of the fact that this intuition clearly does not count as proof for Plato. Moreover the *Phaedo*’s structure shows it to be much more significant than has been generally realised in understanding Plato’s person-centred, ethical, and ultimately metaphysical project. The downplaying of metaphysical necessity by late-Plato and nonreductive science makes this project particularly potent.

ACADEMY REGAINED CONFERENCE

A special symposium is being held that features the authors of the chapters in an upcoming book titled Academy Regained. The Monday morning session includes the science-related chapters and will be held as part of the ASA meeting.

The symposium will continue in the afternoon at Redeemer University College, also in Hamilton, ON, and will cover the remaining chapters.

All registrants of the ASA meeting are welcome to attend both sessions, but they must register

to attend the afternoon sessions at Redeemer and/or to stay for dinner at Redeemer at <http://www.casca.ca/events/event/academy-regained-2014>.

Monday, 28 July 2014 10:30 AM

A Neo-Kuyperian Approach to Mathematics

Kevin Vander Meulen and Calvin Jongmsa

We present mathematics as the study of numerical and spatial aspects of creation.

We describe an understanding of mathematics rooted in the Kuyperian tradition that departs from an Augustinian Platonic understanding of mathematics.

We highlight some reductionist tendencies in the philosophy of mathematics, arguing for a holistic view rooted in part by an understanding of Dooyeweerd's modal aspects. Using the biblical themes of creation, fall, and restoration, we reflect on the non-neutral nature of mathematics.

Monday, 28 July 2014 11:00 AM

Exploring a Biblical Perspective of Engineering

Derek Schuurman and Steve VanderLeest

This talk will explore a biblical perspective of the discipline of engineering, beginning with an overview of the discipline and its major fields (including how it is distinct from a pure science).

We will examine engineering through the biblical themes of creation, fall, redemption and restoration—leading to a discussion of topics such as the cultural mandate, the *imago Dei*, and various design norms.

The talk will conclude with a literature review of the current state of Christian perspectival work in engineering and a proposed research agenda for the community of Christian engineers.

Monday, 28 July 2014 11:30 AM

Reformational Perspectives in Physical Science

Arnold E Sikkema

In Dooyeweerd's modal scale, the physical aspect is flanked by the kinematic and biotic. While physics and mathematics have mutually benefited one another for hundreds of years, connections between biology and physics are only now beginning to emerge.

Understanding the defining characteristics of these three disciplines helps detail their mutual irreducibility as well as their possibilities for fruitful engagement, especially when considering the developments of modern physics. Furthermore, a critical-realist and model-oriented approach to the laws of physics can encourage humble epistemology and limited ontology, much-needed correctives to rampant reductionist and atheist claims.

Casting all this within a Trinitarian, covenantal, and creation-fall-redemption narrative, in which divine revelation as well as creation is taken seriously, provides a nuanced perspective which, among other benefits, offers hope for resolving conflicts the scientific community experiences with many laypersons.

Monday, 28 July 2014 2:00 PM

Exploring a Biblical Perspective of Marketing

Vahagn Asatryan

This paper will examine a normative Christian perspective of the discipline of marketing, in the context of creation-fall-redemption framework, particularly, its (*reconciliatory*, Hagenbuch, 2008) purpose in serving God's Kingdom, as well as (re-) defining the role of marketing professionals' practice directed at various stakeholders.

The session will include a brief analysis of the stakeholder theory (Freeman, 2008) and

an evaluation of its usefulness in classifying and modifying marketing practices. The author will then present synthesis and evaluation of numerous practices, applying a newly developed practical framework to distinguish between biblically normative and anti-normative approaches in this discipline.

The presentation will be enriched with multiple examples and illustrations from the field of advertising and product design. The presenter will also propose a research agenda for Christian marketing practitioners and academics to expand the application of the framework applying modal or aspectual analysis proposed by Christian philosopher Herman Dooyeweerd.

Monday, 28 July 2014 2:30 PM

A Preliminary Rationale for Reformed and Reformational Perspective in Psychological Science

Russell D Kosits and Eric L Johnson

This paper will attempt to briefly describe the current shape of the academic discipline of psychology, with a brief historical account of its origins and evolution as a science, an account of the discipline's strengths, and a discussion of its weaknesses, emphasizing the problem of theoretical fragmentation and the science-practice divide.

A justification for a worldview approach to psychological science as well as for a pluralistic psychological science will be provided.

Then we will argue that approaching the discipline from the vantage point of the biblical narrative, i.e., creation, fall, redemption, and consummation, as understood in the Kuyperian tradition, can provide a wide variety of insights that remedy many of psychology's current shortcomings. Aspectual/modal/dimensional analysis will be provided as an example of this, giving us insights into the very

structure and complexity of contemporary empirical research, why contemporary theorizing often falls short, and how a Reformational approach to theory may succeed where others have not.

Finally, we will advocate deeply engaged, strongly perspectival research in the context of a pluralistic psychological science and will ask whether this Reformed and Reformational framework creates the possibility for distinctively Christian programs of research in mainstream psychological science.

Monday, 28 July 2014 3:00 PM

Toward a Biblical Grounding for Professional Social Work Practice
James R Vanderwoerd

This paper analyzes the nature and structure of the social work profession using a biblical perspective drawing specifically on Reformational philosophy. First, the paper proposes a definition of social work as a practice situated within a particular philosophical and historical context.

Drawing on scripture as a grand narrative, the paper considers the implications of the themes of creation, fall, redemption and restoration for understanding contemporary social work practice.

Overall, the purpose of the paper is to show how a biblical perspective can be used to reveal the limitations of the current state of the social work profession and point to some possibilities for its renewal.

Monday, 28 July 2014 3:30 PM

Political Science Regained
David T Koyzis

Political science is one of the more ancient of academic disciplines, dating at least back to Aristotle who is reputed to have coined the term. For him πολιτική επιστήμη simply meant “knowledge of political life” as lived in the Greek polis. Since then, however, the discipline has come increasingly to be understood in a positivistic sense, along with a certain reduction of the field of knowledge covered.

Recognizing the genuine accomplishments of modern political science, in this paper I propose nevertheless to re-examine political science with an eye to recovering a fuller understanding of its scope and potential in light of the biblical narrative of creation, fall, and redemption in Jesus Christ.

In particular, I will argue that a biblical understanding of the pluriformity of God’s creation will enable us, not only to expand the potential of the discipline, but to set forth a nonreductive account of the place of political life in God’s world and more fully to integrate it within the array of disciplines that make up the academy.

Monday, 28 July 2014 4:30 PM

Music as Science and Art
Janet Danielson

Music is amongst the oldest of human activities, and is assumed in ancient writings to manifest the created order of the cosmos; indeed, the proportions of the temple given to Moses on Mt. Sinai are the precise proportions of musical harmony. Music, then, offers a direct experience of cosmic order and has been celebrated accordingly in a multitude of ways.

Recent critical attention, however, has focussed on music as an indicator of cultural hegemony. It seems to be the best explanation for the way “Western” music has all but obliterated the traditional musical practices of “non-Western cultures.”

This paper will trace the demotion of music from cosmic model to cultural identity marker and will propose how a fuller view of music can be achieved by working back from a vision of a cosmos redeemed to declare the glory of God.

Monday, 28 July 2014 5:00 PM

What Does Kuyper Have to Do with Ranke and Foucault? A Reformational Perspective on the Discipline of History
Kevin Flatt

History, like all scholarly disciplines, proceeds from fundamental convictions that have their origin outside the discipline itself.

This paper explores the implications of a biblical metanarrative of Creation, Fall, and Redemption for the discipline of history, in conscious contrast to other approaches rooted in other fundamental convictions. Topics investigated include the purpose of the discipline itself; in what sense, if any, true historical accounts are possible; which historical themes and topics are worthy of study and why; and the question of progress in history.

Drawing on the rich Reformed intellectual tradition, the paper makes a biblical case for the possibility and value of Christian historical study.

Monday, 28 July 2014 5:30 PM

Word and Flesh: Toward a Christian View of English Literature
Alissa Wilkinson

In the scholarly study of English literature, theories about history, language, social science, art, aesthetics, philosophy, and many more disciplines come to bear. This paper explores how a comprehensive understanding of the normative purpose of literature bears upon the discipline, and how it both acknowledges the contributions of other approaches and extends those. Fundamental to this discussion is the Creation (words speaking world into being), Fall (the twisting of words), and Redemption (the Word becoming flesh) framework for understanding the narrative of the world— itself a grand story—and the implications these have for a distinctly Christian study of literature.

Monday, 28 July 2014 6:00 PM

Toward a Reformed Understanding of Biomedical Ethics
James J Rusthoven

In this presentation, the discipline of biomedical ethics will be explored from a Reformed Christian perspective. Key theories generated by basic beliefs that underlie the discipline today will be presented in light of the biblical mandate to test the spirits of our age (1 John 4).

Biomedical ethics is an expression of the irreducible ethical aspect of the created order whose fullest meaning requires obedience to God and his norms for ethical disposition and conduct. Moving away from such obedience is evident in contemporary ethical frameworks such as principles-based ethics, a dominant paradigm which marginalizes the importance of religious belief in favour of a common morality grounded in reason.

The dominance of this paradigm has been attributable in part to the waning of the overt articulation of the importance of Christian faith in the discipline by Christian bioethicists. However, some Christian bioethicists have appealed to biblical themes such as covenant in articulating the fullest meaning of the relational core of medicine.

In light of such work and reduced attention to relationality in the principles-based approach, there have been increasing appeals to covenantal relating by various bioethicists and a variety of caregivers of different faith and secular traditions. The redeeming nature of covenantal relating in medical practice, particularly as a reflection of the new covenant in Christ, will be exemplified in the contemporary context.

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ASA BUSINESS MEETING AGENDA

SUNDAY, 27 JULY 2014

1. Call to order and opening prayer Keith Miller
2. Introduction of staff Randy Isaac
3. Next year's meeting Dom Halsmer
4. Introduction of newly elected Fellows. Randy Isaac
5. Recognition of fifty years of ASA Membership Randy Isaac
6. Remembrances Randy Isaac
7. Financial Report, 2014 Lynn Billman
8. What ASA Means to Me: A Personal Testimony. Tim Wallace
9. State of the ASA. Randy Isaac
10. Offering for the ASA Keith Miller
11. President's comments Keith Miller
12. Closing prayer Keith Miller

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