

Neuroscience and the Image of God

Joint Meeting of the American Scientific Affiliation
Canadian Scientific and Christian Affiliation
and the
Christians in Science

Trinity Western University
Langley, British Columbia, Canada
July 23–26, 2004

Plenary speakers:

Dr. Warren Brown
Professor, Department of Clinical Psychology and
Director, Lee Edward Travis Research Institute
Fuller Graduate School of Psychology
Pasadena, CA, United States

Dr. David Cechetto
Professor, Department of Anatomy & Cell Biology and
Director, Medical Electives Overseas Program
University of Western Ontario
London, ON, Canada

Dr. Malcolm Jeeves
Founder and Emeritus Professor of the Department of Psychology
University of St. Andrews
St. Andrews, Fife, Scotland

Dr. Heather Looy
Associate Professor, Department of Psychology
The King's University College
Edmonton, AB, Canada

Program Contents

General Information

Bookstore	1
Emergency Phone Number	1
Plenary Sessions.....	1
Special Meetings.....	1
Many thanks to	1

2004 CSCA/ASA/CiS Meeting Schedule

Thursday, July 22, 2004	2
Friday, July 23, 2004	2
Saturday, July 24, 2004.....	2
Sunday, July 25, 2004	4
Monday, July 26, 2004	5

Presenters

Abraham, Joshua B.	6
Bjelland, Mark D.	6
Boorse, Dorothy F.	7
Bouma III, Hessel	7
Bouma-Prediger, Steven C.	7
Bradshaw, Richard A., Ronwyn Grace, and Paul Swingle.....	7
Brown, Warren S.	8
Calbreath, Donald F.	9
Cechetto, David F.	9
Chara, Paul J.	9
Clements, David R. and Wayne Corapi.....	10
*David, Karen Kate	10
Divita, Lorynn R.	10
Dormer, Kenneth	11
Ellis, George F. R. and Judith Toronchuk.....	11
Ellis, George F. R.	11
Faries, Dillard W.	12
Faw, Harold W.	12
Foulks, Jr., William presented by David Langille	12
*Greene, Karlynn E.	13
Haarsma, Loren D.	13
*Hammons, Christopher R.	13
Hollman, Jay	14
Ingebritsen, Thomas S.	14
Jeeves, Malcolm	14
Johnson, W. Ted	15
*Jones, Patrick M.	15
*Keates, Steven D.	15
Koenig, Harold	16
Koetje, David S.	16
*Kozyra, John E.	16
Lamoureux, Denis O.	17
Lechner, Joseph H.	17
Lewis, Raymond J.	18
Looy, Heather	18
Marston, Paul	18

*Student or early career scientists presenting a paper or poster through donated scholarships.

Program Contents

Marston, Philip L.	19
*McCallum, Bruce	19
*Miller, Nathaniel E.	19
Miller, Roman J.	20
Miller, Ruth Douglas and Ian Douglas Miller.....	20
*Mitchell, Heather Elizabeth	20
Murphy, George L.	21
Norwine, James	21
Olsen, Samuel D.	22
Pattimore, David E.	22
Payne, Peter E.	23
Resler, Carl	23
Reynolds, Hugh	23
Rusthoven, James J.	24
*Schmidt, Gwen L.	24
Schmidt, Kristopher L.	24
Seely, Paul H.	25
Shrier, Paul and Cahleen Shrier.....	25
Siemens, Jr., David F.	25
Stephenson, Bret D.	26
Stevens, Duane	26
Strombeck, Donald R.	26
Struthers, William M.	27
*Touryan, Jonathan O. V. and Kenell J. Touryan.....	27
*Touryan, Sharon R.	27
Trenn, Thaddeus J.	28
Warners, David P.	28
Wood, W. Robert	29
Yang, Paul S.	29
*Yarmolinskaya, Julia S.	29
Zimmer, J. Raymond	30
Zylstra, Uko	30

Local Areas Fellowship Luncheon

Place mat Color.....	31
----------------------	----

ASA Business Meeting Agenda

ASA President Martin Price, presiding	32
---	----

News Release

ASA Plans Its 60th Annual Meeting.....	33
--	----

*Student or early career scientists presenting a paper or poster through donated scholarships.

General Information

Bookstore

The Trinity Western University bookstore is located next to the Reimer Student Center. It will feature books of interest to our attendees. Bookstore hours are:

Monday–Friday: 8:00 AM–5:00 PM
Saturday: 11:00 AM–4:00 PM
Sunday: Closed

Emergency Phone Number

If someone needs to contact you, they may call Trinity Western University conference staff: **604.513.2002** (Business hours only) or campus security office: **604.657.9911**.

Plenary Sessions

Friday, 7:00 PM: “Neuroscience, Human Nature, and the Image of God” –Malcolm Jeeves
Saturday, 7:45 PM: “Evolved, Embodied, Embedded and Embraced: The Case of Disgust in Human Identity” –Heather Looy
Sunday, 8:00 PM: “Did My Neurons Make Me Do It? From Physicalism to Moral Agency” –Warren Brown
Monday, 11:00 AM: “Renewing our Minds: More than a Metaphor” –David Cechetto

Special Meetings

Friday: 9:00 PM: Welcome Mixer –Northwest Building

Saturday: 7:00 AM: Publications Breakfast –Alumni Hall, 2d floor of the Reimer Student Centre
12:30 PM: Fellows Luncheon –President’s Reception Hall, 2d floor of the Reimer Student Centre
12:30 PM: Student and Early Career Scientists Luncheon –Alumni Hall, 2d floor of the Reimer Student Centre
9:15 PM: Affiliation Meetings
10:00 PM: Student and Early Career Scientists Ice Cream Social –Douglas Hall, 2d floor lounge

Sunday: 11:30 AM: Local Areas Fellowship Luncheon –Reimer Student Centre
12:30–6:00 PM: “The Gifts of Suffering,” John Templeton Foundation/INPM Symposium –Off campus
5:45 PM: Women in Science/Technology Dinner –Alumni Hall, 2d floor of the Reimer Student Centre
7:00 PM: ASA Business Meeting –Auditorium, Northwest Building
9:15 PM: Commission Meetings

Monday: 11:00 AM: ASA Presidential Address: Martin Price –Auditorium, Northwest Building

Many thanks to ...

CSCA program chair **Judith Toronchuk** with assistance from ASA program chair **Ken Dormer** and CiS program chair **Hugh Reynolds** and CSCA local arrangements chair **David Clements** for the countless hours they have devoted to developing this program.

We are especially pleased and thankful that the **John Templeton Foundation** has helped fund the Student and Early Career Scientists’ scholarships and the plenary lecturers.

This CSCA/ASA/CiS meeting was co-sponsored by **BC CHRISTIAN NEWS**.

The American Scientific Affiliation encourages 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.

2004 CSCA/ASA/CiS Meeting Schedule

Thursday, July 22, 2004	
8:00 AM	Council –President’s Reception Hall, 2d floor of Reimer Student Centre
8:00 AM	Lay Education Committee –Administration Conference Room, 2d floor of Reimer Student Centre
10:00 AM–7:00 PM	Registration –Douglas Hall
11:30 AM–12:00 PM	Lunch –Reimer Student Centre
1:30 PM 3:30 PM 4:30 PM	Self-guided Tour of Trinity Western University Ecosystem Study Area. <i>Meet at Mattson Administration Building.</i>
6:00 PM–6:30 PM	Dinner –Reimer Student Centre
Friday, July 23, 2004	
7:00 AM–7:30 AM	Breakfast –Reimer Student Centre
9:00 AM–9:30 AM	Registration –Douglas Hall
8:00 AM–4:30 PM 9:30 AM–3:30 PM 9:30 AM–3:30 PM 10:00 AM–4:30 PM	Please note: <i>All tours leave from Mattson Administration Building. Times given are departure and arrival times.</i> Tour #1. Britannia Beach/Whistler Mountain Tour #2. University of British Columbia TRIUMF Facility and Botanical Gardens Tour #3. Little Campbell Watershed Tour with A Rocha Canada – Christians in Conservation Tour #4. Harbour Tour and Vancouver Aquarium
12:30 PM–1:00 PM	Lunch –Reimer Student Centre
5:30 PM–6:00 PM	Dinner –Reimer Student Centre
7:00 PM–9:00 PM Plenary Session	Plenary Session –Auditorium, Northwest Building Welcome and Announcements ♦ ASA President: Martin Price ♦ TWU Associate Academic Vice President: Deane Downey ♦ Local Arrangements Chair: David Clements ♦ Program Co-chairs: Kenneth Dormer , ASA; Hugh Reynolds , CiS; Judy Toronchuk , CSCA “Neuroscience, Human Nature, and the Image of God” – Malcolm Jeeves Response: Phillip Wiebe , TWU Philosophy Department ♦ CSCA President: Robert Mann
9:00 PM	Please note: <i>Student and Early Career Scientists will meet in the auditorium briefly with Johnny Lin before mixer.</i> Welcome Mixer –Foyer, Northwest Building
Please note: <i>All meal-time meetings begin at the start of the meal time. Please go through the line promptly and then take your meal with you to the meeting area (to be announced).</i>	
Saturday, July 24, 2004	
7:00 AM–7:30 AM	Breakfast –Reimer Student Centre Publications breakfast: Roman Miller , presiding
8:30 AM–9:00 AM	Morning Devotions –Auditorium, Northwest Building Music Leader: Kathryn Schmidt Devotions: Deborah Haarsma Announcements: David Clements and Judy Toronchuk

9:00 AM	Spouse Trip. <i>Must pre-register at Registration Desk for transportation to Fort Langley or to the sky train to Vancouver.</i>		
9:00 AM–10:30 AM Parallel Session I	<p>I-A. Neuroscience Symposium –Auditorium</p> <p>“Top-down” Causation Moderator: William Struthers</p> <ul style="list-style-type: none"> ◆ Neuroscience and the Image of Man: Arguments for and against Reductionism –Jonathan Touryan and Kenell Touryan ◆ An Exploration of Trauma-Specific Frontal Lobe Brainwave Activity and Post-traumatic Symptomatology Before and After the Application of a Specific Bilateral Stimulation and Integration Technique –Richard Bradshaw, Ronwyn Grace, and Paul Swingle ◆ Do Placebos Elicit Neurochemical Effects? –Joseph Lechner 	<p>I-B. Biomedical Ethics Symposium –Room 113</p> <p>Ethical Issues Involving Competency and End-of-Life Decision-Making Moderator: Don Munro</p> <ul style="list-style-type: none"> ◆ Concepts of Competency in Medical Decision-Making: A Critique from a Christian Perspective –James Rusthoven ◆ Lessons from the Terri Schindler-Schiavo Case –Hessel Bouma III ◆ Challenges of Alzheimer’s Disease –Hugh Reynolds 	<p>I-C. Environmental Symposium –Room 106</p> <p>Technological Perspectives on Christian Environmentalism Moderator: Janel Curry</p> <p><i>This symposium is jointly sponsored by the ASA Global Resources and Environment Commission and the Affiliation of Christian Engineers and Scientists in Technology. Financial support is from a CCCU Initiative Grant for Networking Christian Scholars.</i></p> <ul style="list-style-type: none"> ◆ Nature, Technology and the <i>Imago Dei</i>: Mediating the Nonhuman through the Practice of Science –Bret Stephenson ◆ Matthew 6:28 and the Production Pipeline: Environmental Ethics in Textiles and Apparel Manufacturing –Lorynn Divita ◆ Sense of Place as a Guide for Developing GMOs That Enhance Cultural and Ecological Resilience –David Koetje
10:30 AM–10:50 AM	Refreshment Break –Foyer		
10:50 AM–12:20 PM Parallel Session II	<p>II-A. Neuroscience Symposium –Auditorium</p> <p>“Bottom-up” Causation Moderator: William Struthers</p> <ul style="list-style-type: none"> ◆ The Awesome Auditory System –Carl Resler ◆ Metaphor Processing in the Right and Left Hemispheres –Gwen Schmidt ◆ Extreme Sports, Mystical Experiences and Elijah—Danger and the Experience of God –Steven Keates 	<p>II-B. General Ethics Symposium –Room 113</p> <p>General Ethical Issues Moderator: Dorothy Chappell</p> <ul style="list-style-type: none"> ◆ Neuroscience and the Law –Donald Calbreath ◆ Irreconcilable Differences between Christian and Secular Medical Ethics –Jay Hollman ◆ Divine Assistance for Healing’s Immanent Activity –Donald Strombeck 	<p>II-C. Environmental Symposium –Room 106</p> <p>Christian Environmentalism and Social Organization Moderator: John R. Wood</p> <ul style="list-style-type: none"> ◆ The Good of a Flourishing Creation: Seeking God in a Culture of Affluence –David Warners ◆ To Live as God or as Creatures? The Paradox of Environmentalism in a Self-Referential Age –James Norwine ◆ The Moral Landscape of Alternative Suburban Spaces: Environment, Community, and the Good Place –Mark Bjelland
12:30 PM–1:00 PM	Lunch	Fellows Luncheon: Martin Price , presiding	Student and Early Career Scientists Luncheon: Johnny Lin , presiding
1:45 PM–3:45 PM Parallel Session III	<p>III-A. Neuroscience Symposium –Auditorium</p> <p>Brain Development and Personhood Moderator: Loren Haarsma</p> <ul style="list-style-type: none"> ◆ Neural Development: Affective and Immune System Influences –George Ellis and Judith Toronchuk ◆ Cognitive Deficits in Agenesis of the Corpus Callosum: An Example of the Failure of Emergence –Warren Brown ◆ Descartes’ Error Revisited: The Pineal Gland, Cingulate Cortex and the Neuroscience of Volition –William Struthers 	<p>III-B. General Ethics Symposium –Room 113</p> <p>Ethical Issues at the Beginning-of-Life and Stem Cells Moderator: Hessel Bouma III</p> <ul style="list-style-type: none"> ◆ Evolving Concepts of Nature and the Beginning of Human Life –Bruce McCallum ◆ Virture Ethics: Viewing the Early Human Embryo through Anabapist Eyes –Roman Miller ◆ A Correlation Theology Analysis of Embryonic Stem Cell Research –Paul and Cahleen Shrier 	<p>III-C. Environmental Symposium –Room 106</p> <p>Theology and Human Agency Moderator: Steve Bouma-Prediger</p> <ul style="list-style-type: none"> ◆ Evaluating Environmental Values from a Theocentric Perspective –Raymond Lewis ◆ Conservation and Restoration in New Zealand: Unique Biota and Unique Challenges –David E. Pattemore ◆ Paradise Lost? Setting the Boundaries Around Weeds –David Clements ◆ Christian Responses to Changes in Longevity, Food Security and Population Growth –Dorothy Boorse ◆ Technology, Social Organization and Theology: How Should We Live on God’s Good Earth? –Steven Bouma-Prediger
3:45 PM–4:15 PM	Refreshment Break –Foyer		

Sunday, July 25, 2004

<p>4:15 PM–6:00 PM Poster Session</p>	<p>Poster Session –Room 112, Northwest Building</p> <ul style="list-style-type: none"> ◆ Generation of Endonuclease G Knock-out Mice –Karen Kate David ◆ Internalization of Nanoparticles in the Middle Ear Epithelium in Response to an External Magnetic Field: Generating a Force –Kenneth Dormer ◆ Proposed Ultra-miniaturized Signal-transmission in Biology: Conjugated Molecules –William Foulks, presented by David Langille ◆ Analysis of Proprioception in the Lower Limb: Discussing the Ability to be Spatially Oriented –Patrick Jones ◆ Health and Healing in an Ancient Hebrew Ritual –Joseph Lechner ◆ Comparison of Christian Perspectives on Human Embryonic Stem Cell Research –Nathaniel Miller ◆ Gasoline Consumption and Stewardship: A Survey of Christian Choices for Automobile Transportation –Ruth and Ian Miller ◆ Desert Restoration Efforts in Joshua Tree National Park: Utilization of Woody Legumes and Rhizobia –Heather Mitchell ◆ Development of the “Fruit of the Spirit” Related to Information from Brain Mapping –Samuel Olsen ◆ Evolution of the Eukaryotic Spliceosome and the Hidden Nature of God –Kristopher Schmidt ◆ Emotional Arousal Modulates Memory for Contextual Information –Sharon Touryan ◆ Reconsidering the Multiple Catastrophism to “Reconcile” the Great Flood and the Old Earth –Paul Yang 		
<p>6:10 PM</p>	<p>Banquet –Begins on Patio outside Dining Hall, Reimer Student Centre. Entrance to dining hall by special ticket only.</p>		
<p>7:45 PM–9:15 PM Plenary Session</p>	<p>Plenary Session –Auditorium Lay Education Committee Update and Challenge: Jack Haas Introduction: Judy Toronchuk “Evolved, Embodied, Embedded and Embraced: The Case of Disgust in Human Identity” –Heather Looy</p>		
<p>9:15 PM Affiliation Meetings</p>	<ul style="list-style-type: none"> ◆ Christian Biologists: Marilyne Flora, presiding ◆ Christian Geologists: Keith Miller, presiding ◆ Christian Engineers and Scientists in Technology: Jack Swearingen, presiding 		
<p>10:00 PM</p>	<p>Student and Early Career Scientists Ice Cream Social –Douglas Hall, 2d floor lounge</p>		
<p>Sunday, July 25, 2004</p>			
<p>7:30 AM–8:00 AM</p>	<p>Breakfast –Reimer Student Centre</p>		
<p>9:00 AM–9:45 AM</p>	<p>Bible Study –Auditorium Bible Study: Hugh Reynolds Announcements: David Clements and Judy Toronchuk</p>		
<p>10:00 AM–11:15 AM</p>	<p>Worship Service –Auditorium Worship Leader: Fred Hickernell Special Music: Dawn Lechner Sermon: “The Resurrection of the Body,” Scripture: 1 Cor. 15:35–58 –Hans Boersma</p>		
<p>11:30 AM 11:45 AM–12:15 AM</p>	<p>Please note: <i>Find the table marked with the color place mat of your local area (see p. 31). Meet and fellowship with others from your area. Serving lines will begin after the blessing.</i> Local Areas Fellowship Luncheon –Reimer Student Centre</p>		
<p>1:00 PM–3:00 PM Parallel Session IV</p>	<p>IV-A. Origins Symposium –Auditorium Moderator: Denis Lamoureux</p> <ul style="list-style-type: none"> ◆ Galileo’s Lost “Kairos” Moment: Lesson for the Origins Controversy –Joshua Abraham ◆ The Failure of Hugh Ross’s Concordism and a Biblical Alternative –Paul Seely ◆ Creation or Curse? Mosquitoes and Malaria, Fear and Favoritism –Loren Haarsma ◆ Beyond Adam and Eve: Toward an Evangelical Approach to Human Evolution –Denis Lamoureux 	<p>IV-B. Action in Community Symposium –Room 106 Moderator: Marilyne Flora</p> <ul style="list-style-type: none"> ◆ Global Environmentalism in the Workplace and in the Church: How Can We “Just Get Along” in God’s Kingdom? –Duane Stevens ◆ Exploring the Evolution Creation Controversy in a Public University Course –Thomas Ingebritsen ◆ The Nature of Praise vs. the Praise of Nature: Music’s Potential to Health and Environment –W. Ted Johnson ◆ GMOs Incorporated: Norms for Developing and Implementing GMOs That Are Founded on a Holistic Perspective –Uko Zylstra 	<p>IV-C. Templeton/INPM Symposium The Gifts of Suffering: Spiritual Transformation, Science & Medicine –off campus, downtown Vancouver Moderator: Malcolm Jeeves</p> <p><i>Bus leaves from Reimer Student Centre 12:30 PM sharp and returns at 6:00 PM. It is held at the Empire Landmark Hotel, Robson Street, Vancouver.</i></p> <ul style="list-style-type: none"> ◆ Spirituality and Pain: Finding Purpose, Meaning and Hope in the Midst of Suffering –Harold Koenig, Keynote Speaker ◆ Suffering and Joy: The Relations to Rationality, Emotion, Faith and Hope –George Ellis ◆ Understanding Disability without Escaping to Dualism –Warren Brown

3:00 PM–3:30 PM	Refreshment Break –Northwest Foyer		
3:30 PM–5:00 PM Parallel Session V	<p>V-A. Psychology & Consciousness Symposium –Auditorium Moderator: Ray Zimmer</p> <ul style="list-style-type: none"> ◆ Shall We Entreat the Lady: A Theology of Antidepressant Medication –Karlynn Greene ◆ Conscience, Neuroscience and Non-reductive Physicalism –John Kozyra ◆ Cross-linguistic Influences in Bilingual Acquisition of Russian and English –Julia S. Yarmolinskaya 	<p>V-B. Physics Symposium –Room 106 Moderator: Loren Haarsma</p> <ul style="list-style-type: none"> ◆ An Attempt to Formulate a Quantum Mechanical Reality –Dillard Faries ◆ Reflections on Symmetry –W. Robert Wood ◆ James Clerk Maxwell and George Gabriel Stokes: A Comparison –Philip Marston 	
5:45 PM–6:15 PM	Dinner –Reimer Student Centre	Women in Science/Technology Dinner – Marilyne Flora and Ruth Miller , presiding –Alumni Hall, 2d floor of Reimer Student Centre	
7:00 PM–8:00 PM	ASA Business Meeting –Auditorium		
8:00 PM–9:15 PM Plenary Session	Plenary Session –Auditorium Introduction: Judy Toronchuk “Did My Neurons Make Me Do It? From Physicalism to Moral Agency” – Warren Brown		
9:15 PM Commission Meetings	<ul style="list-style-type: none"> ◆ Bioethics Commission: –Don Munro, presiding ◆ Communications Commission*: –Paul Arveson, presiding ◆ Creation Commission: –George Murphy, presiding ◆ Global Resources and Environment: –John Wood, presiding ◆ History and Philosophy of Science: –Thaddeus Trenn, presiding ◆ Physical Sciences: –Don Sprowl, presiding ◆ Science Education*: –Paul Arveson, presiding ◆ Social Science: –Judy Toronchuk, presiding <p>*<i>Communications and Science Education Commissions will meet together.</i></p>		
Monday, July 26, 2004			
7:00 AM–7:30 AM	Breakfast –Reimer Student Centre		
8:30 AM–9:00 AM	<p>Morning Devotions –Auditorium Music Leader: Kathryn Schmidt Devotions: Don McNally Announcements: David Clements and Judy Toronchuk</p>		
9:00 AM–10:45 AM Parallel Session VI	<p>VI-A. Psychology Symposium –Room 113 Psychology and the Person Moderator: Ray Zimmer <i>Session sponsored by the Social Science Commission</i></p> <ul style="list-style-type: none"> ◆ Cognitive Psychology: Examining Persons in the Image of God? –Harold Faw ◆ Sensory Images of God: Divine Synesthesia –Paul Chara ◆ Does Evolution of Moral and Religious Sentiments Imply Relativism? –Loren Haarsma ◆ Semiotics and Evolutionary Psychology –J. Raymond Zimmer 	<p>VI-B. Religion and Science Symposium –Room 106 Moderator: Ruth D. Miller</p> <ul style="list-style-type: none"> ◆ God’s Two Books and God’s Image –George Murphy ◆ Metaphysical Worries with a Buddhist Philosophy of Science –Christopher Hammons ◆ Hermeneutics and Science –Paul Marston 	<p>VI-C. Mind, Brain and Soul Symposium –Auditorium Moderator: Marvin McDonald</p> <ul style="list-style-type: none"> ◆ If the Spiritual Soul Were Beyond the Scope of Physicalism –Thaddeus Trenn ◆ The Metaphysics of Personal Agency –Peter Payne ◆ Neuroscience, Theology and Unintended Consequences –David F. Siemens, Jr.
10:45 AM–11:00 AM	Refreshment Break –Foyer		
11:00 AM–12:50 PM Plenary Session	<p>Plenary Session –Auditorium Introduction: Judy Toronchuk “Renewing our Minds: More than a Metaphor” –David Cechetto ASA Presidential Address: Martin Price</p>		
1:00 PM–1:30 PM	Lunch –Reimer Student Centre		
3:00 PM	Check out. Please return your key to the registration desk.		

Parallel Session IV-A
Sunday, July 25
1:00 PM–3:00 PM
Auditorium, NW Bldg.

Galileo’s Lost “Kairos” Moment: Lessons for the Origins Controversy

Joshua B. Abraham
706-115 SW 16th Avenue
Gainesville, FL 32601
nomadabraham3@yahoo.com
352.375.3183

Galileo’s Lost “Kairos” Moment: Lessons for the Origins Controversy

The Galileo Affair is still widely perceived as a disaster for the relationship between Christianity and science. The present controversy over the matter of origins resembles the Affair in its divisive and polarizing character, even among Christians in science. This paper raises the question, could the Galileo Affair have concluded differently? There is good historical evidence to suggest that Galileo lost his opportune moment—what the Bible calls a *kairos* moment—to present his theories in defense of Copernicanism, despite all of the building opposition. It is the thesis of this paper that Galileo squandered the precious relational capital he had gained within the Catholic Church hierarchy from 1610–1621 and that he failed to read the signs of the times, e.g., to see how the rise of Maffeo Barberini to the papacy and the Thirty Years War complicated his position. Finally, his total unwillingness to converse about his epistemological presuppositions versus those of the Church sealed his fate, once the other factors (lost relationships and historical circumstances) fell into place. The fall of Galileo could have ended, it is hypothesized, with a far softer landing. This paper is about human contingency and windows of opportunity. Applications for the ongoing controversy about evolution will be drawn directly from the narrative of the Affair, a historical incident with much to inform the Christian response to Darwinism.

Parallel Session II-C
Saturday, July 24
10:50 AM–12:20 PM
Room 106, NW Bldg.

The Moral Landscape of Alternative Suburban Spaces: Environment, Community, and the Good Place

Mark D. Bjelland
800 West College Avenue
Saint Peter, MN 56082
mbjellan@gac.edu
507.933.6283

The Moral Landscape of Alternative Suburban Spaces: Environment, Community, and the Good Place

A number of moral philosophers have stressed the importance of communities to support individuals in their efforts to lead the virtuous, good life.¹ Meanwhile, environmental ethicists from Aldo Leopold onwards have stressed the need to broaden our vision of the moral community to include the non-human world of plants, animals, earth, sky, and water. For Christians the values of community and environment are captured in the concept of shalom—right-relatedness between God, humans and the rest of creation. But what do these endorsements of community and environmental values have to do with the real, place-based communities where we live, work, play, and worship? What is more, how can we use these notions to critically engage the work of the developers, designers, and city planners who shape the built environment we inhabit? This study examines the moral landscape of three alternative suburban spaces. Two are “conservation communities” and the third is a “neotraditional” neighborhood, all built at the urban-rural fringe of the Minneapolis–St. Paul metropolitan area. Designers and developers of these projects present their work as more than a mere cosmetic makeover of suburbia. For them, these place-based communities represent a blueprint for a new moral landscape that embraces values of community and care for the environment. And yet, as the geographers remind us, landscape is duplicitous and appearances may conceal as well as reveal.² In this paper, I examine the claims made by promoters of these “neotraditional” and “conservation communities” and attempt to open a dialogue on the nature of the “good place.”

¹S. Hauerwas, *A Community of Character: Toward a Constructive Christian Social Ethic* (Notre Dame, IN: University of Notre Dame Press, 1981); A. C. MacIntyre, *After Virtue: a Study in Moral Theory*, (Notre Dame, IN: University of Notre Dame Press, 1984); and P. J. Wadell, *Friendship and the Moral Life* (Notre Dame, IN: University of Notre Dame Press, 1989).

²David Ley, “Co-operative Housing as a Moral Landscape: Re-examining ‘the Postmodern City’,” in J. Duncan and D. Ley, eds. *Place, Culture, Representation* (New York: Routledge, 1993).

Christian Responses to Changes in Longevity, Food Security and Population Growth

Here I address potential Christian responses to technological advances designed to prolong human life, viewed in light of environmental issues surrounding overpopulation and social issues

surrounding global food security. In the twenty-first century, human population growth is expected to level out, but not before some areas of the world experience tremendous population increases. In such regions, like sub-Saharan Africa, food and water shortages are expected to increase. Other parts of the world have begun to experience negative growth rates which eventually may produce locally declining populations. These countries struggle to support a growing number of elderly people. This uneven change in demographics between the developing and developed nations may fuel greater gulfs between the rich and the poor, dramatic global migration pressures, and negative environmental effects. The viewpoints people have of the relative risks of these effects depends in part, on their interpretation of statistics about food security. Some interpret food production figures to show a rosy light, and others to show a negative future. Concurrently, scientists are discovering more about prolonging human life. There is a growing interest among humanists in the possibility of prolonging human life hundreds of years, even indefinitely. Here I try to clarify the picture of global and regional food security and to discuss ethical issues surrounding it. I connect food security to both population growth and prolonged human life and propose that prolonging human life indefinitely is not a biblical mandate. Finally, I discuss Scriptural principles for addressing the opposing population pressures we are encountering in the first half of this century.

Medical Ethics and Neuroscience at the End of Life: Lessons from the Terri Schindler-Schiavo Case

In Clearwater, Florida, 40-year-old Terri Schiavo clings to life in a nursing home while protracted medical, legal and political battles seek to determine whether it is permissible to disconnect the hydration and feeding tube which has sustained her life since 1990. Four independent, court-appointed physicians have judged her to be in a persistent vegetative state, incapable of recovering. Terri's parents believe she may still recover and desire further treatment; her husband and legal guardian—engaged in marital infidelity and in line to inherit funds remaining from a malpractice suit when she dies—desires to allow her to die by removing her artificial feeding. Last fall, in unprecedented intervention the Florida legislature and governor overrode numerous court decisions by nineteen judges over six years to reinsert her gastrostomy tube, an action heralded by numerous Christian organizations and disability groups.

What are the lessons from the Schiavo Case? How and to what extent can neuroscience contribute to a determination whether Terri is in a persistent vegetative state or a vegetative state from which she might gain some measure of recovery? Does her condition constitute medical futility? In the absence of “clean and convincing evidence” of her wishes, how have family members, community of faith, and society responded and how ought we to respond? Does this case break new medical, ethical and legal grounds, or is it sufficiency unique to not serve as a precedent in future cases? Would an Advance Directive have resolved this situation?

Technology, Social Organization, and Theology: How Should We Then Live on God's Good Earth?

This symposium will focus on the role of technology in contemporary life, from textiles to genetically modified foods, on various forms of social organization, from management decisions in wilderness parks to the use and misuse of urban brownfields, and on how Christian theology can and should inform our common life of discipleship on God's good earth. This concluding paper will be a response to all of the preceding papers and will thus attempt to bring together the common threads, highlight the significant differences, and focus the central questions raised by the previous presenters.

An Exploration of Trauma-Specific Frontal Lobe Brainwave Activity and Post-traumatic Symptomatology Before and After the Application of a Specific Bilateral Stimulation and Integration Technique

In this study the symptomatology of Post Traumatic Stress Disorder (PTSD) was observed and explored, along with changes in neurophysiological activity of participants after treatment with a

*Parallel Session III-C
Saturday, July 24
1:45 PM–3:45 PM
Room 106, NW Bldg.*

Christian Responses to Changes in Longevity, Food Security and Population Growth

Dorothy F. Boorse
Gordon College
Department of Biology
255 Grapevine Road
Wenham, MA 01984
dboorse@gordon.edu
978.969.1464

*Parallel Session I-B
Saturday, July 24
9:00 AM–10:30 AM
Room 113, NW Bldg.*

Medical Ethics and Neuroscience at the End of Life: Lessons from the Terri Schindler-Schiavo Case

Hessel Bouma III
Calvin College
3201 Burton Street SE
Grand Rapids, MI 49546
boum@calvin.edu
616.526.6401

*Parallel Session III-C
Saturday, July 24
1:45 PM–3:45 PM
Room 106, NW Bldg.*

Technology, Social Organization, and Theology

Steven C. Bouma-Prediger
Hope College
Holland, MI 49423
boumapred@hope.edu
616.395.7757

*Parallel Session I-A
Saturday, July 24
9:00 AM–10:30 AM
Auditorium, NW Bldg.*

An Exploration of Trauma-Specific Frontal Lobe Brainwave Activity and Post-traumatic Symptomatology

Richard A. Bradshaw
Dept. of Counseling Psychology
Trinity Western University
7600 Glover Road
Langley, BC V2Y 1Y1
rick.bradshaw@twu.ca
604.513.2121 x3382
and

Ronwyn Grace
Maple Ridge Treatment Centre
Maple Ridge, BC V2X 2E2
ronwyngrace@yahoo.co.uk
604.467.3471
and

Paul Swingle
1190 Melville St., Ste. 630
Vancouver, BC V6E 3W1
pswingle@drswingle.com
604.608.0444

Parallel Session III-A
Saturday, July 24
1:45 PM–3:45 PM
Auditorium, NW Bldg.

**Cognitive Deficits in
Agenesis of the Corpus
Callosum: An Example of
the Failure of Emergence**

Warren S. Brown
Professor, Department of Clinical
Psychology and Director, Lee
Edward Travis Research Institute
Fuller Graduate School of
Psychology
180 N. Oakland Avenue
Pasadena, CA 91101
wsbrown@fuller.edu
626.584.5525

Parallel Session IV-C
Sunday, July 25
12:45 PM–6:00 PM
Off-campus

**Understanding Disability
without Escaping to
Dualism**

Warren S. Brown
see above

Plenary Session
Sunday, July 25
8:00 PM–9:15 PM
Auditorium, NW Bldg.

**Did My Neurons Make Me
Do It? From Physicalism to
Moral Agency**

Warren S. Brown
see above

selected bilateral technique, known as “One Eye Integration” (OEI). These techniques have shown clinical promise for integration of traumatic memories and reduction of associated PTSD symptoms. Ten participants, who had all suffered from severe traumatic events and met the Diagnostic and Statistical Manual of Mental Disorders–Revision IV (DSM-IV) criteria for PTSD, were assigned to either a treatment group or a delayed-treatment control group. The treatment group received three sixty-minute OEI treatment sessions over a two-week period. A variety of standard psychometric instruments were used to assess the impact of the treatment on participant recollections of one specific traumatic event in the life of each participant. Script-driven symptom provocation was used to activate posttraumatic recollections. Trauma-specific prefrontal brainwave activity was measured before and after treatment application. Findings revealed significant treatment-specific effects and an overall decrease in PTSD symptoms. An alpha asymmetry pattern was corrected. This has been well-documented in previous studies, and involves changes in agitated depressive states with concomitant increases in brainwave amplitudes in the 12–15 Hz frequency range over the right prefrontal cortex and decreases in the same frequency range over the left prefrontal cortex.

**Cognitive Deficits in Agenesis of the Corpus Callosum:
An Example of the Failure of Emergence**

Agenesis of the corpus callosum (ACC) is a condition in which the large interconnective pathway (200 million axons) between the right and left cerebral hemispheres fails to develop during human prenatal development. Individuals with this disorder (and without other abnormalities of brain development) can have normal basic intelligence. However, there are consistent cognitive and psychosocial impairments. Ten years of research into interhemispheric transfer of information, problem solving, language comprehension, memory, humor, and social comprehension in individuals with ACC will be summarized. Nonreductive physicalism, as a theory of human nature, presumes that increased neural complexity allows for the emergence of new neurocognitive functions and abilities. Research on individuals with ACC will be discussed as an illustration of the failure of emergence of important higher human cognitive processes due to reduced neural complexity—absence of the 200 million axons of the corpus callosum.

Understanding Disability without Escaping to Dualism

While body/soul dualism has provided a rationale for special protection of humankind, it has also lead to some degree of gnosticism in the understanding of suffering and disability. It is presumed that if the person’s soul (or spirit) is okay, then one need be less concerned about their physical suffering or the relational impoverishment associated with their disability. However, modern neuroscience compels a more physicalist (embodied) understanding of personhood. How can the issues of suffering and disability be understood within a more embodied understanding of human nature? Does embodiment require greater focus on the physical and relational lives of persons? This talk will argue that it is possible to develop a deeply satisfying understanding of suffering and disability, and a robust ethic of interpersonal regard, within a non-dualist understanding of human nature.

**Did My Neurons Make Me Do It?
From Physicalism to Moral Agency**

Cognitive neuroscience has raised important questions regarding the traditional Hebrew/Christian understanding of persons as bodies inhabited by non-material minds or souls (i.e., dualism). Physicalism (monism) offers an alternative. However, this view has typically been associated with reductionism and determinism that contradict a Christian view of the person. However, *non-reductive* physicalism provides a view of human nature that can be reconciled with a theological perspective. This paper will explore a physicalist, but non-reductive, understanding of human mental function that allows for robust forms of mental efficacy and moral agency. This talk will explore the question: How can mental properties with causal roles emerge from the physical activity of hyper-complex human brains such as to support genuine moral agency?

The dualist view sees mind as essentially internal to the body and largely passive (decoupled from action). However, it will be argued that mind is embodied and embedded in ongoing action in the

world. Mental causation and moral agency will be described as a product of the interaction of a number of developing capacities: a phylogenetic increase in capacities for flexibility in behavior; re-expression in action of “beliefs” embodied in the “structuring causes” of complex memories; hierarchical levels of evaluation of feedback from ongoing behavior; emerging capacities for mental modeling and imagination; language; reflexive cognition; and the external scaffolding of intelligence in culture.

Neuroscience and the Law

In 1994, Tony Mobley went on trial for the brutal murder of a pizza parlor employee. His defense was that he had a genetic predisposition toward violence (specifically a decrease in brain serotonin) and should not be executed. Although the state Supreme Court ultimately disallowed his appeal, the case raised a number of questions dealing with the interfaces of biochemistry, behavior and the law. Articles in various law journals debate how best to use the explosion of data from the neurosciences in assessing the legal liability of individuals. Many attorneys and judges argue that we need to change the laws to reflect the research findings, while others question various aspects of the issue of biochemical determinism. An underlying concern is the reliability of the neuroscience data and its interpretation. Earlier work (“Aggression, Suicide and Serotonin . . .” *PSCF* 53, no. 2 [2001]: 84–95) critiqued the research literature supposedly linking violent behavior to low serotonin levels and offered alternate explanations for the data. This presentation will provide an overview of some of the current legal literature, examining the legal thinking based on neuroscience and assessing how the research data has been applied in specific instances. Implications of allowing the courts to define moral right and wrong based only on the current prevailing interpretation of biochemistry/behavior data will be explored.

Renewing Our Minds: More than a Metaphor

Imaging techniques have recently permitted some very exciting insights into the function of the human brain related to cardiovascular control, perception of pain, and modulation of the immune system. Firstly, we have been able to examine the sites in the human brain mediating mental or emotional stress and the cardiovascular consequences. It has been shown that individuals that have a large cardiovascular response to mental stress are at risk for cardiovascular diseases. We have demonstrated, using functional MRI, that the pattern of activation in the cortex of cardiovascular reactors is very different from non-reactors in response to mental stress. The critical question we intend to pursue is whether past experiences or genetics are responsible for this altered neural response. Secondly, we have also examined the sites in the human brain activated by painful stimuli and have determined which of the areas are primarily responding to the pain or the changes in cardiovascular variables. Related investigations have indicated that similar sites can be activated simply by feelings of empathy for someone else experiencing pain. Furthermore, the same cortical sites which are involved in the cardiovascular reactivity to mental stress are also implicated in the placebo treatment for painful stimuli or even the anticipation of painful stimuli. Finally, we have implicated these same cortical areas in the modulation of the immune response to emotional stress. Over the last decade, it has become clear that the adult brain has considerable plastic properties and is able to substantially change connectivity based on sustained inputs. In light of this plasticity in the adult brain, the question the imaging data raise is whether or not a person’s beliefs and religious practices can account for the differences seen in the cortical areas mediating the cardiovascular responses, pain perception or immune response to mental or emotional stress.

Sensory Images of God: Divine Synesthesia?

Synesthesia is the psychophysical phenomenon in which stimulation of one sense modality elicits a perception in a different sense modality. According to Martino and Marks (2001), synesthetic experiences range from automatically evoked associations generated by sensorineural processes—strong synesthesia—to learned, linguistically influenced, correspondences—weak synesthesia. Furthermore, some synthetic congruencies are more extrinsically derived (based on experience), such as with higher pitches being associated with smaller size (children under age eleven rarely make such associations), whereas other congruencies appear to be more intrinsically oriented: the correspondence between loudness and brightness (a near universal association that is commonly

Parallel Session II-B
Saturday, July 24
10:50 AM–12:20 PM
Room 113, NW Bldg.

Neuroscience and the Law

Donald F. Calbreath
Chemistry Department MS 3903
Whitworth College
300 W. Hawthorne
Spokane, WA 99251
dcalbreath@whitworth.edu
509.777.4506

Plenary Session
Monday, July 26
11:00 AM–12:50 PM
Auditorium, NW Bldg.

Renewing Our Minds: More than a Metaphor

David F. Cechetto
Professor, Department of
Anatomy & Cell Biology and
Director, Medical Electives
Overseas Program
University of Western Ontario
London, Ontario N6A 5C1
cechetto@fmd.uwo.ca
519.661.4166

Parallel Session VI-A
Monday, July 26
9:00 AM–10:45 AM
Room 113, NW Bldg.

Sensory Images of God: Divine Synesthesia?

Paul J. Chara
Professor of Psychology
Northwestern College
3003 Snelling Avenue North
St. Paul, MN 55113
pjc@nwc.edu
651.628.3244

Parallel Session III-C
Saturday, July 24
1:45 PM–3:45 PM
Room 106, NW Bldg.

Paradise Lost? Setting the Boundaries Around Weeds

David R. Clements
 Department of Biology
 Trinity Western University
 7600 Glover Road
 Langley, BC V2Y 1Y1
 clements@twu.ca
 604.888.7511
 and

Wayne Corapi
 Department of Biology
 Trinity Western University
 7600 Glover Road
 Langley, BC V2Y 1Y1
 Wayne.Corapi@twu.ca
 604.888.7511

Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.

Generation of Endonuclease G Knock-out Mice

Karen Kate David
 Johns Hopkins School of Medicine
 731 N. Broadway, Suite 740
 Baltimore, MD 21205
 karen@jhmi.edu
 443.857.4218

Parallel Session I-C
Saturday, July 24
9:00 AM–10:30 AM
Room 106, NW Bldg.

Matthew 6:28 and the Production Pipeline: Environmental Ethics in Textile and Apparel Manufacturing

found in very young children) may be a result of common sensorineural activities. A wide range of experiences, such as listening to a song or smelling the scents of various perfumes, can elicit synesthetic associations. Could a person's perception of God take on a synesthetic quality? To investigate that possibility, 187 students from a secular university and a religiously affiliated college were presented 27 questions about their sensory images of God. Participants' responses to the questions revealed several strong regularities in perception, suggesting a weak synesthetic experience and were interpreted to support the Martino and Marks (2001) semantic coding hypothesis. Additionally, gender, religious orientation, and value preferences were found to be related to many of the participants' images of God, whereas some associations appeared to transcend the psychosocial factors studied. The perceptions of the participants were also compared to relevant biblical passages and found to be highly consistent with a scriptural portrayal of God in some ways but inconsistent with a biblical depiction of God in other respects.

Paradise Lost? Setting the Boundaries Around Weeds

For millennia, humanity has been plagued by weeds. God says to Adam in Genesis 3: "Cursed is the ground because of you ... It will produce thorns and thistles ..." Hawaii now has the unenviable title of "endangered species capital of the United States." Nearly all the plants commonly viewed in the coastal zones of the islands are alien to Hawaii. Does it matter that this "paradise on earth" is not as it was before this massive alteration of the habitat via human agency? Do the original Hawaiian ecosystems, remnants of which still exist, possess intrinsic value that should be counted as greater than the new exotic plant communities? If these questions are to be answered in the affirmative, should we attempt to restore the former ecosystems? How do we deal with difficult issues of sacrificing one weed (e.g. the four-legged weed, the wild pig), for the good of an ecosystem? Because the term weed is so subjective, and likewise our concept of "pristine wilderness"—a multi-disciplinary approach is needed to incorporate both "social value" and "natural value." The objectives of this paper are to examine the link between ecological integrity and the sacredness of a native landscape, like that native to Hawaii, and to outline Christian environmental ethics on invasive species. Invasive species are finding themselves in an increasingly borderless world, and as God's stewards of creation, we need to appraise the boundaries.

Generation of Endonuclease G Knock-out Mice

A variety of proteins including apoptosis inducing factor (AIF) and endonuclease G (EndoG) are released from mitochondria upon apoptotic stimuli and cooperate in prosecuting the downstream processes of programmed cell death. At first, both factors were assumed to cause the cell death process in a caspase-independent fashion, but recent studies showed that the translocation of these molecules from mitochondria can also be triggered by the activation of the caspase cascade to some degree, raising questions about the relationship among mitochondrial dysfunction, caspase activation and translocation of these cell death effectors. To address the role of EndoG in cell death *in vivo*, EndoG knockout mice were generated. In mouse ES cells, a 2.0 kb region of the EndoG gene containing exon 2 and the coding region of exon 3 was replaced with the PGK-NEO cassette by gene targeting. Four of the targeted ES cell lines were subjected to blastocyst injection producing 7 chimeric mice. Two male chimeric mice transmitted the targeted allele into the germ line to deliver heterozygous mice. Cross-mating these mice produced EndoG KO mice. EndoG KO mice are viable and lack EndoG as determined by Western blot analysis. Examination of cell death in EndoG KOs is under investigation.

Matthew 6:28 and the Production Pipeline: Environmental Ethics in Textile and Apparel Manufacturing

The production of textiles and apparel are among the most ancient industries in the world, with a rich biblical heritage beginning with Genesis 3:7. Textiles and apparel are one of the few consumer products mentioned in the Bible that are still as commonly used today as in Scriptural times. Our apparel binds us inextricably to the earth in two ways: by allowing us to exist by shielding us from harsh conditions; and through the impact that textile and apparel production methods have on the natural environment. Despite the fact that production methods have evolved drastically since biblical times, many key environmental issues still plague the industry at every stage of production,

from fiber through sewing. The objectives of this paper are to examine the environmental issues that continue to plague the textile and apparel industry and attempt to interpret them from a Christian perspective by combining biblical references with a review of literature from environmental theorists. The results will provide a case study illustrating how environmental issues that challenge an individual industry can be interpreted from an ethical, Christian perspective which could then be applied to virtually any manufacturing industry. This topic is of importance because comparably little attention is paid to the ecological impact of the textile and apparel industry relative to higher-profile industries that more obviously consume natural resources such as oil and coal production. Writings on the environmental issues that challenge the textile and apparel industry are isolated in scope and not from a Christian perspective.

Internalization of Nanoparticles in the Middle Ear Epithelium in Response to an External Magnetic Field: Generating a Force

The prospect for generation of forces in living tissues for biomedical applications exists through the use of chronically implanted magnetic nanoparticles. *In vivo* limitations of long-term biocompatibility include particle morphology, size distribution, composition, and mode of internalization. In this study we report the first generation of force by long-term, anionic, superparamagnetic intracellular nanoparticles (MNP) using a guinea pig middle ear model (n=16). Synthesis of magnetite nanoparticles was done using a modified precipitation technique. MNP were characterized by transmission electron microscopy, x-ray diffractometry and energy dispersive spectroscopy, which verified silica encapsulation. The mechanism for internalizing 16 ± 2.3 nm diameter, silica coated, superparamagnetic, MNP was likely magnetically enhanced endocytosis. Using sterile technique the middle ear epithelia of tympanic membrane or ossicles was exposed and MNP with fluorescein isothiocyanate (FITC) was applied to the upper surface. A rare earth, permanent magnet (0.35 Tesla) placed under the animal was used to pull the MNP into the tissue. After 8 days, following euthanasia, tissues were harvested and confocal scanning laser interferometry used to verify intracellular MNP. Displacements of the ossicular chain in response to an external sinusoidal electromagnetic field also were measured. Laser Doppler interferometry was used to measure, for the first time, a normal biomechanical function produced by an external magnetic field on MNP.

Neural Development: Affective and Immune System Influences

This paper proposes that the developmental processes of Edelman's Neural Darwinism fit together in a very coherent way with the present increasing understanding of the importance of the affective dimension in neuroscience. A synthesis of these two features, with the evolutionarily determined primary affective systems together with the immune system providing the value system required by Neural Darwinism, provides an integrative viewpoint relating psychological issues at the macro level to neurobiological processes structuring neuronal connections at the micro level. We look at the various implications of such an integrative viewpoint relating genetically determined affective systems to higher cortical functions, considering successively developmental and functional issues, primary and secondary emotions, psychological issues, evolutionary issues, language, genetic issues, neurological issues, and potential outcomes of the proposal. We suggest that the "wet-wiring" nature of neurotransmitter mediated synaptic connections may be related to this integration. We then consider the implications of molecularly based links between the brain and the immune system, showing this too might play a significant role in the processes of neural Darwinism. Indeed this could possibly relate to the evolutionary origin of affective systems.

Suffering and Joy:

The Relations to Rationality, Emotion, Faith, and Hope

The limitations of science imply a necessity for hope and faith in all human life. There is a series of steps, including forgiveness and kenosis, that can act as the basis of hope for transformation, particularly because they have the capacity to alter the context of action and meaning. The South African experience during the changeover from apartheid involved the transformation of reconciliation and centrally included forgiveness. There is scope for using suffering toward transformation even in desperate situations involving military action provided it is of a highly disciplined kind.

Lorynn R. Divita
Family and Consumer Sciences
One Bear Place #97346
Baylor University
Waco, TX 76798-7346
Lorynn_Divita@baylor.edu
254.710.6265

Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.

Internalization of Nanoparticles in the Middle Ear Epithelium in Response to an External Magnetic Field: Generating a Force

Kenneth Dormer
Department of Physiology
Oklahoma University Health
Sciences Center
Oklahoma City, OK 73190
405.271.2226 x1221
ken-dormer@ouhsc.edu

Parallel Session III-A
Saturday, July 24
1:45 PM–3:45 PM
Auditorium, NW Bldg.

Neural Development: Affective and Immune System Influences

George F. R. Ellis
Mathematics Department
University of Cape Town
Rondebosch 7701
Cape Town, South Africa
ellis@maths.uct.ac.za
and

Judith Toronchuk
Psychology Department
Trinity Western University
7600 Glover Road
Langley, BC V2Y 1Y1

Parallel Session IV-C
Sunday, July 25
12:45 PM–6:00 PM
Off-campus

Suffering and Joy: The Relations to Rationality, Emotion, Faith, and Hope

George F. R. Ellis
see above

Parallel Session V-B
Sunday, July 25
3:30 PM–5:30 PM
Room 106, NW Bldg.

An Attempt to Formulate a Quantum Mechanical Reality

Dillard W. Faries
Physics Department
Wheaton College
501 College Avenue
Wheaton, IL 60187
Dillard.W.Faries@wheaton.edu
630.752.5897

Parallel Session VI-A
Monday, July 26
9:00 AM–10:45 AM
Room 113, NW Bldg.

Cognitive Psychology: Examining Persons in the Image of God?

Harold W. Faw
Psychology Department
Trinity Western University
7600 Glover Road
Langley, BC V2Y 1Y1
hfaw@twu.ca
604.513.2121 x3101

Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.

Proposed Ultra-miniaturized Signal-transmission in Biology: Conjugated Molecules

William Foulks, Jr.
185 W. Carriage Drive #202
Chagrin Falls, OH 44022
kforty@alum.mit.edu; or
ret.officer.USNR@iopener.net
440.247.7713
presented by:

David Langille
Trinity Western University
Unit 35 – 9348 128th St.
Surrey, BC V3W 6A4
dee.langille@shaw.ca

An Attempt to Formulate a Quantum Mechanical Reality

Quantum mechanics (QM) has presented us with a bewildering complex of conceptual problems. Suffice it to say that questions of reality, determinism, and locality are intertwined in both ontological and epistemological forms. I am trying to look at QM itself with some skepticism but also some hope of a better perspective on the reality of the world as seen by the probings of QM. In particular, seeing \emptyset as a probability (rather than the canonical interpretation of as probability) suggests that the idea of a quantum passing from one place to another could profitably be replaced by a going-coming back in space and time, a confirmed transaction, an effectively timeless but nonlocal interaction. This has been effectively described by Cramer,¹ calling it a transactional interpretation. Combining this with Feynman's path-integral approach,² we can suggest that the fundamental reality of the quantum world may be modeled by an entity which defies the law of the excluded middle in a near-trivial way: rather than being "this or that" (and nothing in between), it can come in four varieties. It can be (1) this going/this coming back, (2) this going/that coming back, (3) that going/this coming back, (4) that going/that coming back. Bell's inequalities³ which have clarified some of the issues of QM assumes the "classical" reality of "this or that." QM clearly does not confine itself to that simple reality. Expanding the reality and providing the time-reversal mechanism for nonlocality can hopefully be a "non-classical" reality which is sufficiently broad to encompass QM.

¹J. G. Cramer, "The Transactional Interpretation of Quantum Mechanics," *Rev. Mod.* 38 (1986): 647–87.

²Edwin F. Taylor, "The Boundaries of Nature: Special and General Relativity and Quantum Mechanics," *Am. J. Phys.* 66, no. 5 (1998): 369–76.

³J. S. Bell, *On the Einstein-Podolsky-Rosen Paradox* (Long Island City, NY: 1964), 1, 195–200.

Cognitive Psychology: Examining Persons in the Image of God?

Christian scholars have understood the "imago dei" variously, but the concept of humans beings made in God's image is virtually always seen as incorporating, and perhaps even highlighting, our powers of thinking, reasoning, and deciding. Indeed, through its use of terms such as consider, remember, know, realize, ponder, etc, the biblical record makes frequent allusions to our cognitive capacities. The question remains, however, as to the extent to which cognitive perspectives and models can co-exist amicably alongside biblical views of personhood. For example some expressions of cognitive psychology lean toward thoroughly mechanistic accounts of higher mental processes, thus potentially challenging important biblical perspectives. This paper explores the interface between central cognitive approaches and the assumptions and values foundational to a Christian understanding of persons. The picture that emerges suggests that with appropriate qualifications, these two perspectives can offer mutually beneficial contributions to one another.

Proposed Ultra-miniaturized Signal-transmission in Biology: Conjugated Molecules

Carotenoids and conjugated polymers, of which undoped and iodine-doped polyacetylene are examples of the latter, have led the writer, William Foulks, and his physicist brother Edwin, to originate this concept that allows ultra-miniaturized, but specifically-directed, signals to be transmitted to otherwise inaccessible recesses within cells of the human body and of other cells of biology. Conjugated molecules and conjugated polymer molecules which contain, in the classical valence-bond model, alternating single bonds and double bonds, allow a physicochemical effect, imparted at one end of a molecule, to cause a physicochemical effect to appear at a distant part of that molecule. Distinct from the classical bond representation, but employing delocalization considerations, where more slightly-held electrons bind more than two atoms, a chemical stimulus imparted at one extremity of the molecule will produce an accompanying effect of some physicochemical character, perhaps electron-abundance or deficiency, at a more remote part of the molecule. Cells in the human body tend to employ methods which can function quite effectively, with a minimum of material, and still perform a needed function, that is, use chemical structures which are the smallest possible, in sending signals. The transmitting of directed signals from one site to another along a single molecule, which is one atom in thickness, is employing the barest minimum of matter possible for transmitting targeted signals. Most signals can be benign.

Shall We Entreat the Lady: A Theology of Antidepressant Medication

This research examines the theology of antidepressant medication. It began with a desire to determine when it is right or wrong to use anti-depressants. However, after the study examined the neurology of depression, it became clear that the underlying issue to be addressed was the mind/body relationship. The theories of dualism, supervenience, reductive and non-reductive physicalism are next considered within the context of current treatments for depression. The paper then considers some biblical texts from a modified non-reductive physicalist stance. These texts include 1 Kings 19:1–18, Matthew 9:2–8 and 1 Corinthians 15:12–19. The scientific narrative approach to these passages is then used to evaluate some common views toward depression. Finally, this paper offers practical guidelines to apply and integrate a non-reductive physicalist view of the mind/body relationship into Christian attitudes toward and treatments for depression.

*Parallel Session V-A
Sunday, July 25
3:30 PM–5:30 PM
Auditorium, NW Bldg.*

Shall We Entreat the Lady: A Theology of Antidepressant Medication

Karlynn E. Greene
Azusa Pacific University
PO Box 9521 unit 1473
Azusa, CA 91702
la_clovette@hotmail.com
626.905.9446

Creation or Curse? Mosquitoes and Malaria, Fear and Favoritism

Most Christian theology considers the effects of humanity's fall into sinfulness to be pervasive. So it is tempting for us to blame everything which annoys or hurts us on the Fall. When we study creation scientifically, however, we find that many of the things which can annoy or hurt us— from tiny viruses to the second law of thermodynamics—play an important, natural, and perhaps inevitable part in the functioning of God's complex and amazing creation. We shouldn't be hasty to blame something on the Fall which was part of God's good design. This should prompt us to think in more nuanced ways about the effects of the Fall on human nature, as neuroscience and sociobiology are offering new scientific insights into human emotions and behavioral dispositions.

*Parallel Session IV-A
Sunday, July 25
1:00 PM–3:00 PM
Auditorium, NW Bldg.*

Creation or Curse? Mosquitoes and Malaria, Fear and Favoritism

Loren D. Haarsma
Physics Department
Calvin College
1734 Knollcrest Circle SE
Grand Rapids, MI 49546
lhaarsma@calvin.edu
616.526.8517

Does Evolution of Moral and Religious Sentiments Imply Relativism?

Some recent scientific work has focused on the evolution of moral and religious dispositions in humans. In popular literature, this scientific work has often been used to support philosophical claims that human moral and religious beliefs have no objective status or truth content. In the professional literature, there is ongoing debate as to whether human evolution implies moral relativism. Many of these philosophical claims rely on unnecessary additions to the science. Evolutionary accounts of moral and religious dispositions are potentially compatible with Christian beliefs, but evolutionary accounts by themselves are incapable of achieving the full picture which Christian theology requires. In addition to reviewing the literature, I will discuss resources Christian theology has to expand the scientific picture and allow for objective truth claims in moral and religious beliefs.

*Parallel Session VI-A
Monday, July 26
9:00 AM–10:45 AM
Room 113, NW Bldg.*

Does Evolution of Moral and Religious Sentiments Imply Relativism?

Loren D. Haarsma
see above

Metaphysical Worries with a Buddhist Philosophy of Science

Recent attempts to critique current philosophical presuppositions behind scientific practice have included attacks from certain Buddhist perspectives. B. Alan Wallace is one such Buddhist philosopher who has suggested that thousands of years of Buddhist contemplative practices have led to a well-developed science of subjective introspection that western science, blinded by scientific materialist philosophy, has ignored and will continue to ignore given the emphasis on third-party observation and the assumption that the physical world is all that exists. Wallace's "centrist" (essentially, Madhyamaka) view of Buddhism provides an alternative view of scientific observation and theorizing by avoiding the perpetual problems that plague both the scientific realist perspective and its instrumentalist opponent. The centrist view requires certain metaphysical positions regarding the human person (viz. personal identitylessness) and the universe (viz. the interrelatedness of all events and beings) that relate to our faculty of perception. One criterion Wallace provides in order to determine the validity of this centrist view is that it must be conceptually internally consistent. It is the internal consistency of the concepts of personal identitylessness and the interdependence of all reality that are in need of examination. After explicating Wallace's view of interdependence, it will be shown that, among other problems, the types of relations that allegedly exist between each dependent entity are unable to support his robust view of individual participation in observation and theorizing. In addition, removing the reality of individuals which is essential to the concept of

*Parallel Session VI-B
Monday, July 26
9:00 AM–10:45 AM
Room 106, NW Bldg.*

Metaphysical Worries with a Buddhist Philosophy of Science

Christopher R. Hammons
4770 Tillinghast Court
Mason, OH 45040
christh@uc.edu
513.573.7049

Parallel Session II-B
Saturday, July 24
10:50 AM–12:20 PM
Room 113, NW Bldg.

Irreconcilable Differences Between Christian and Secular Medical Ethics

Jay Hollman
 5825 Airline Highway
 Baton Rouge, LA 70805
 jhollm@lsuhsc.edu
 225.358.1070

Parallel Session IV-B
Sunday, July 25
1:00 PM–3:00 PM
Room 106, NW Bldg.

Exploring the Evolution Creation Controversy in a Public University Course

Thomas S. Ingebritsen
 Department of Genetics,
 Development & Cell Biology
 Iowa State University
 640 Science II
 Ames, IA 50011-3223
 tsingebr@iastate.edu
 515.294.9432

Plenary Speaker
Friday, July 23
7:00 PM–9:00 PM
Auditorium, NW Bldg.

Neuroscience, Human Nature, and the Image of God

Malcolm Jeeves
 Founder and Emeritus Professor
 of the Department of Psychology
 St. Andrews University
 St. Andrews, Fife KY16 9AJ
 Scotland

personal identitylessness gives rise to other metaphysical problems that the scientific realists and instrumentalists need not entertain. In conclusion, it will be shown that these conceptual difficulties in Wallace's metaphysics need to be worked out more carefully if his version of the Buddhist centrist view is to be seriously considered by philosophers of science.

Irreconcilable Differences Between Christian and Secular Medical Ethics

In the general body of scientific knowledge, there is hope that truth will eventual win over all serious seekers. Expectations prior to an experiment might differ among the investigators but after the results are available expectations and theory must be brought in congruity with the new information. Ethics as a science does not lend itself well to experimentation but follows rules of logic expanding upon presuppositions. In secular ethics, it is assumed that beneficence, non-maleficence and autonomy are logical guiding principles that should guide medical decision making. How one applies these principles very much depends on one's worldview. "Better dead than a quad [quadriplegic]" and "better dead than a Down's [Trisomy 21]" are judgments reflecting worldview more than a logical extrapolation of ethics principles or the scientific facts. In fact most Down's syndrome individuals are quite happy and the happiness of quadriplegics is dependent upon societal support. The above-quoted aphorisms are more an extension of the survival of the fittest worldview. The secular worldview of the "survival of the fittest" and the biblical worldview of the downtrodden in the parable of the sheep and the goats (Matt. 25) cannot be reconciled by any contortion of logic into a synthesis that leads to a common medical ethic. The secularists see the feeble as something to be discarded or tolerated. The Christian sees Christ (God) in the feeble and weak, serving them and helping them is a high form of virtue and a manifestation of a life transformed by a knowledge of Christ.

Exploring the Evolution Creation Controversy in a Public University Course

The origin and history of life on earth has been the subject of a continuing and often emotional debate among scientists and Christians for over a hundred years. An important question is whether and how this debate should be addressed in public education. This paper will explore this question within the context of a public university setting. It will describe the author's experience in developing and teaching a one credit honors seminar entitled "God and Science" at Iowa State University. The seminar explored scientific and religious aspects of the evolution/creation controversy. Topics included: the nature of science, scientific arguments for evolution, scientific and theological arguments for three Christian views of creation (young earth creationism, old earth creationism, theistic evolution), the role of science in interpreting Scripture, the role of God in science and evolution as science vs. evolution as a worldview. The seminar was approved by the Honors Curriculum Committee and offered three times (Fall 2000 to Fall 2002); however, the Committee (with new members) failed to approve the course the fourth time because of concerns about the appropriateness of the material for a public university course. The paper will describe the objectives and design of the seminar as well as discuss student and faculty reactions.

Neuroscience, Human Nature, and the Image of God

Rapid developments in neuroscience over the past four decades continue to receive wide media attention. Each new reported advance points to ever tightening links between mind and brain. This paper affords the non-specialist a brief overview of some of the scientific evidence pointing to the ever tightening of the mind-brain links and explores its wider implications for our understanding of human nature. In particular it brings together the findings from so-called bottom-up research in which we observe changes in behavior and cognition resulting from experimental interventions in neural processes, with topdown research where we track changes in neural substrates accompanying habitual modes of cognition or behavior. Further reflection alerts one to how the dualist views widely held by New Agers, some humanists and many religious people, contrast with the views of most neuroscientists, theologians and biblical scholars, who agree in emphasizing the unity of the person.

For many centuries what is today called “mind-talk” was familiar as “soul-talk.” In many Christian traditions the “image of God” in humans is located in the possession of a “rational soul.” Within such formulations there lies an inherent dualism which, as the neuroscience evidence outlined earlier indicated, is difficult to defend. Alternative formulations of what may be meant by the “image of God” are briefly discussed. In particular we emphasize how the theologian Colin Gunton has written “to be in the image of God is at once to be created as a particular kind of being—a person—and to be called to realize a certain destiny. The shape of the destiny is to be found in God-given forms of human community and of human responsibility to the universe.”

The Nature of Praise vs. the Praise of Nature: Music’s Potential to Heal the Environment

Scientific evidence as well as much folklore strongly suggest that music influences the physical, mental, and spiritual dimensions of people. Plants and animals too, respond to music in both positive and negative ways. Can music improve environmental conditions worldwide, as it touches our lives? Creation not only responds to music, but according to the Bible, it constantly makes music in praise of its Creator. The Bible also documents the fact that God takes pleasure in what he has made. These two realities, creation praising God and God experiencing pleasure in what he has made, constitute the most positive and powerful basis for Western culture to start viewing the environment like God does. The music of the Church echoes the environmental message of the Bible but has, to date, largely fallen on deaf ears. Taken to extremes, music’s effectiveness has been attributed to the highest heaven as well as the lowest hell. Solomon reminds us that we cannot stop hearing (Eccles. 1:8). Sounds of all types surround us. We filter out most of these sounds, including the constant chorus of praise being directed toward the Creator by his creation. John Muir was one of the few contemporary conservationists who spoke often of hearing nature’s praise for its Creator. If we were to actually hear what was going on, it would radically change our behavior, toward God, toward one another, and toward the environment. May those that have ears to hear, let them hear.

Analysis of Proprioception in the Lower Limb: “Discussing the Ability to be Spatially Oriented”

Over the past decade, with improvements in neurological rehabilitation and surgical procedures, the topic of proprioception has received increasing attention from healthcare researchers. This form of sensory input has often been described as a variation in the sense of touch, including the sense of joint motion (kinesthesia) and joint position. Receptors in the skin, the musculo-tendinous unit, the ligament and the joint capsule have all been found to contribute, to proprioceptive reception. This research project addresses proprioception as a major component of lower limb movement and ambulation. Steps taken in this research process have aimed at identifying and analyzing: (1) case studies and specific populations where proprioception plays an important role, (2) specific anatomical components involved, and (3) current research and rehabilitation procedures addressing impairment of this sensation.

Extreme Sports, Mystical Experiences and Elijah—Danger and the Experience of God

Extreme sports have emerged as a major activity in America. The increased physical demands and high risks of extreme sports create acute physiological changes associated with an increased sense of wellbeing. These psychic rewards are leading millions to experience the “high” of extreme sports. At the same time, technological breakthroughs in neuroscience have opened the way for neurotheology, the study of how the brain experiences God. Of particular interest is D’Aquili, Newberg and Rause’s *Why God Won’t Go Away*. This book argues from a perennial stance that the common element of mystical experiences is a special sense of unity with God. This unity, they claim, is achieved by decreased activity in the posterior superior parietal lobe, which provides consciousness of our body’s location in space, separate from the external world. It’s suppressed activity leads to reduced awareness of subject-object duality in consciousness. Suppressing activity in this region can be achieved through “top-down” activities such as relaxation and prayer, or “bottom-up” activities that create excitation, such as vigorous dance or chanting. While they affect

*Parallel Session IV-B
Sunday, July 25
1:00 PM–3:00 PM
Room 106, NW Bldg.*

The Nature of Praise vs. the Praise of Nature: Music’s Potential to Heal the Environment

W. Ted Johnson
Sr. Coordinator, Palomino Library
Scottsdale Public Library
6262 E. Brown Road #62
Mesa, AZ 85205
ted@hislight-az.com
602.625.0177

*Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.*

Analysis of Proprioception in the Lower Limb: “Discussing the Ability to be Spatially Oriented”

Patrick M. Jones
Azusa Pacific University
901 E. Alosta Avenue
Azusa, CA 91702
mdpj_2000@yahoo.com
626.485.7167

*Parallel Session II-A
Saturday, July 24
10:50 AM–12:20 PM
Auditorium, NW Bldg.*

Extreme Sports, Mystical Experiences and Elijah—Danger and the Experience of God

Steven D. Keates
Azusa Pacific University
5492 Hibiscus Court
Pollock Pines, CA 95726
stevenkeates@yahoo.com
530.409.1745

*Parallel Session IV-C
Sunday, July 25
12:45 PM–6:00 PM
Off-campus*

**Spirituality and Pain:
Finding Purpose, Meaning
and Hope in the Midst of
Suffering**

Harold Koenig
Duke University Medical School
Box 3400 Medical Center
Durham, NC 27710
koenig@geri.duke.edu

*Parallel Session I-C
Saturday, July 24
9:00 AM–10:30 AM
Room 106, NW Bldg.*

**Sense of Place as a Guide
for Developing GMOs That
Enhance Cultural and
Ecological Resilience**

David S. Koetje
Biology Dept
Calvin College
1726 Knollcrest Circle SE
Grand Rapids, MI 49546
dkoetje@calvin.edu
616.526.7047

*Parallel Session V-A
Sunday, July 25
3:30 PM–5:30 PM
Auditorium, NW Bldg.*

**Conscience, Neuroscience
and Non-reductive
Physicalism**

John E. Kozyra
Azusa Pacific University
PO Box 9521 Unit 7177
Azusa, CA 91702
jkozyra@apu.edu
909.261.1776

the autonomic nervous system in different ways, these activities all suppress brain activity in the posterior superior parietal lobe. This paper considers parallels between Newberg and D'Aquili's findings and the excitation experienced in extreme sports. Then, it reconsiders the story of Elijah's conflict with the prophets of Baal. Finally, using science and narrative analysis, it develops a practical theology of extreme sports.

**Spirituality and Pain:
Finding Purpose, Meaning and Hope in the Midst of Suffering**

This paper will review medical research that examines levels of well-being, joy, meaning, and purpose among those with chronic health problems. It will discuss studies that explore the impact of spiritual beliefs and practices on well-being and hope in persons with severe medical illness and those who are dying. It will develop a theoretical model to explain how religious faith impacts well-being and hope in severe illness, which can be tested in future research studies.

**Sense of Place as a Guide for Developing GMOs
That Enhance Cultural and Ecological Resilience**

For genetically modified organisms (GMOs) to have a role in improving food security, it is imperative that we develop a paradigm for research and policy-making that is rooted in a sense of place. Technologies affect the ecological and cultural interconnections inherent in a place. Appropriate technologies enhance the resilience of these interconnections; inappropriate technologies erode resilience and lead to ecological and/or cultural disintegration. That food is historically embedded in a sense of place is evident by regional cuisines and festivals celebrating key events in local food production systems. Unfortunately, even as it permits us to enjoy multi-cultural cuisines year-round, globalization threatens the resilience of food production systems here. As North American farmers struggle to compete with producers whose production costs are a great deal lower, many opt for technologies that increase mechanization and intensification. However, job loss accelerated by mechanization erodes rural communities. Intensification strains soil productivity and ecological resilience. To reverse this trend, we need to redouble our efforts to develop technologies, including GMOs, through more openly democratic means and with greater emphasis on ecological constraints. This requires examination of our underlying worldviews, basic assumptions, and values—all of which are historically tied to our sense of place. It requires contextually appropriate research and policy-making involving collaborations between stakeholders in conformity to the shared values of local communities, as well as to the environmental constraints of bioregions. Such a paradigm respects the choices of communities who opt for GMO-free solutions, while providing for the development of GMOs that enhance cultural and ecological resilience.

Conscience, Neuroscience and Non-reductive Physicalism

This research considers the neurology and theology of conscience from a non-reductive physicalist perspective. First, it briefly identifies current scientific understandings of the neurological structures and functions responsible for moral decision-making. Second, some morally significant examples of bottom-up and top-down neurological research will be identified. Bottom-up research considers how manipulations of or changes in the brain's physical structure impact cognitive-affective processes. Top-down research examines how actions, feelings, and thoughts change the brain's physical structure and functioning. After examples of these two research approaches are identified, implications for moral development will be considered. What is the nature of the conscience? Is determining right from wrong primarily a physical process? If so, what is the soul? How does God influence these choices? These questions will be asked from a Christian perspective. Particularly, bottom-up and top-down considerations will be compared with the description of moral development, or rather the moral disintegration described in Romans 1:18–32. Finally, this paper will suggest directions for further integration of science and theology in this field.

Beyond Adam and Eve: Toward an Evangelical Approach to Human Evolution

The thought that humans evolved from ape-like creatures is often perceived as a threat to our dignity. For many, this notion reduces us to “nothing but” animals driven by physical instincts and desires. In some evangelical institutions today, just questioning whether we descend from Adam and Eve can lead to the disciplinary action against a pastor, elder or teacher. For some like myself, the acceptance of human evolution has barred them from the opportunity to teach in their denominational college and seminary. This paper affirms the reality of the Image of God and human sin, and it asserts that these are non-negotiable principles of Christian Faith. Three basic approaches for the manifestation of these spiritual realities during human evolution are presented:

1. **Evolutionary Monogenism.** This view suggests that God at one point in time selected a single pair of individuals from a population of evolving pre-humans. He then dramatically intervened to implant his Image and made them morally culpable. Soon afterwards these two humans sinned through a specific rebellious event. Adam and Eve are identified as the first couple.
2. **Punctiliar Polygenism.** This model proposes that the Creator intervened dramatically at one point in time to embed his Image into all evolving pre-humans or a select group of these individuals. At that precise moment they were made morally culpable, but everyone in this first community of humans soon sinned. This position suggests that there was one generation of “Adams” and “Eves.”
3. **Gradual Polygenism.** This view asserts that the Image of God and human sinfulness were gradually manifested through many generations of evolving human ancestors. Accordingly, the origin of spiritual characteristics that define and distinguish humanity is not marked by a singular punctiliar event in history. Rather, these spiritual realities arose in a mysterious and gradual fashion during human evolution in a way similar to their manifestation during development in the womb. This approach rejects the historicity of Adam/s and Eve/s. This paper concludes that Evolutionary Monogenism and Punctiliar Polygenism are rooted in a concordist hermeneutic. In other words, evangelicalism’s difficulty with human evolution is ultimately a failure in our ability to read the Word of God.

Do Placebos Elicit Neurochemical Effects?

One hundred years ago, most physicians administered placebos for therapeutic purposes. Fifty years ago, the use of placebos became commonplace as a required control in double-blind medical studies. The placebo was redefined as the pharmacological equivalent of zero, and the possibility of a tangible benefit was dismissed. Today, physicians are realizing that the patient’s belief in a treatment, the doctor’s belief in the treatment, and the patient’s belief in the doctor are all important. The placebo effect is tangible and measurable. Pain relief is the most widely studied placebo effect. It has been suggested that belief in a placebo can trigger the release of endorphins, which could provide a physicochemical explanation for analgesia. Opiate narcotics such as heroin possess a molecular shape which resembles that of enkephalin, prompting the suggestion that opiates act by mimicking enkephalin at endogenous receptors in the central nervous system. It has recently been noted that opiate antagonists block the analgesic effect of a placebo.

Health and Healing in an Ancient Hebrew Ritual

God promised not to bring diseases upon his people who heeded his voice and kept his commandments; He also identified Himself as “the Lord who heals you” (Exodus 15:26). Thus, obedience to Scripture has been linked with both prophylaxis (prevention of disease) and therapeutics (treatment of disease). The Old Testament listed many ways in which an Israelite could become ceremonially unclean, including contact with reptiles, predatory birds, non-kosher fish and mammals, and carcasses of otherwise-clean animals that had died naturally. Human body fluids were considered unclean, as were most matters that pertained to sex or reproduction. Contact with a diseased person or a gentile could make one unclean, but the greatest defilement came from touching a corpse or a grave. Numbers 19 describes a priestly ritual that provided a remedy for defilement. An unblemished red heifer was slaughtered outside the tabernacle/temple, and offered by fire as a burnt offering. Ashes were collected and mixed with clean water. The mixture, known as “waters of separation,” was to be sprinkled on unclean persons, places and objects. This ritual is

*Parallel Session IV-A
Sunday, July 25
1:00 PM–3:00 PM
Auditorium, NW Bldg.*

Beyond Adam and Eve: Toward an Evangelical Approach to Human Evolution

Denis O. Lamoureux
University of Alberta
#1106 8510-111 Street
Edmonton, AB T6G 1H7
dlamoure@ualberta.ca
780.439.2648

*Parallel Session I-A
Saturday, July 24
9:00 AM–10:30 AM
Auditorium, NW Bldg.*

Do Placebos Elicit Neurochemical Effects?

Joseph H. Lechner
Mount Vernon Nazarene
University
800 Martinsburg Road
Mount Vernon, OH 43050
jlechner@mvnu.edu
740.392.6868 x3211

*Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.*

Health and Healing in an Ancient Hebrew Ritual

Joseph H. Lechner
see above

Parallel Session III-C
Saturday, July 24
1:45 PM–3:45 PM
Room 106, NW Bldg.

Evaluating Environmental Values from a Theocentric Perspective

Raymond J. Lewis
 Department of Biology
 Wheaton College
 Wheaton, IL 60187
 ray.lewis@wheaton.edu
 630.752.5300

Plenary Speaker
Saturday, July 25
7:45–9:15 PM
Auditorium, NW Bldg.

Evolved, Embodied, Embedded and Embraced: Disgust, Morality and Identity

Heather Looy
 Associate Professor of
 Psychology
 The King's University College
 9125 - 50th St
 Edmonton AB T6B 2H3
 heather.looy@kings.ca
 780.465.3500 x8065

Parallel Session VI-B
Monday, July 26
9:00 AM–10:45 AM
Room 106, NW Bldg.

Hermeneutics and Science

Paul Marston
 History and Philosophy of
 Science and Theology
 143 Longmeanygate
 Leyland, PR26 6TD UK
 Marston99@aol.com
 44.1772.431788

rich with religious symbolism, but an added tangible benefit the “waters of separation” had disinfectant properties. Priests used a brushy plant (Hebrew “*ezov*”) to sprinkle “waters of separation” and also to sprinkle blood from animal sacrifices. “*Ezov*” is usually translated into English as “hyssop,” but the species used by Israelites was probably something other than European hyssop. Several candidates for “*ezov*” would have imparted disinfectant activity. The “waters of separation” is typical of biblical instructions that were written in overtly religious terms, but that conferred a tangible health benefit that was not explicitly identified as health-promoting in Scripture. Good health is one of “all these things” that Jesus taught would be “added unto” those who seek first God’s kingdom and his righteousness (Matthew 6:33).

Evaluating Environmental Values from a Theocentric Perspective

The concepts of moral considerability and value are essential components of ethics. In environmental ethics, this has been formulated from two main positions. Does the environment have intrinsic value such that we have a direct duty to the environment, or does the environment have instrumental value such that we have an indirect duty? These two manners of considerability form the bases for ecocentric and anthropocentric environmental ethics, respectively. A theocentric environmental ethic can transcend these positions and can reconcile some of the conflicts between these value systems by incorporating both intrinsic and instrumental value. However, in a theocentric position, the meanings of these values are altered. Intrinsic value, which is defined when something is valuable in and for itself, is somewhat different when defined on the basis of its origin as being created by God, by his will and for his pleasure. Thus, this value is not wholly intrinsic, since it is derived from God. Likewise, instrumental value does not need to be measured by usefulness to humans, but by usefulness to the working of the whole creation. Humans and human concerns are included in such a holistic understanding. This theocentric manner of evaluating environmental value may provide a more solid basis for environmental ethics, as will be demonstrated by application of these values to the practical problem of the conservation of species.

Evolved, Embodied, Embedded and Embraced: Disgust, Morality and Identity

Disgust plays an important role in moral judgment, giving us a sense of the boundaries of culture and its moral codes, hindering us from violating those codes, leading us to avoid those who do, and providing a sense of identity. The diverse fields of evolutionary psychology, neuroscience, social psychology/anthropology, and theology each offer a perspective on the functions and purposes of disgust (and other emotions) in moral judgment and moral behavior. While there are important differences in the fundamental assumptions, theories and methods of these fields, it may be possible to weave a story of disgust and moral judgment that brings them into dialogue. Rather than consider each field in isolation, or view one as foundational to the rest, such a story needs to take seriously the insights from each. I will explore the potential and the limitations of these perspectives to illuminate our understanding of human morality.

Hermeneutics and Science

“In the beginning God made the heavens and earth ...” How much of what this meant to the original writer can be regarded as “transcultural,” and how much have modern perceptions altered (even if we use the same words)? If advancing science affects the hermeneutic of such verses, should we expect, e.g., modern biological/sociological study to alter perceptions like those in Romans 1:27 and 1 Peter 3:7? This paper will argue for a “Jesus-centered” hermeneutic, paralleling a “christocentric” theology. This means that, firstly, Jesus’ non-literalistic use of language, rather than any supposed enlightenment of advancing science, should inform our approach to the hermeneutics of Old Testament cosmological language. “Literalism” is to be rejected not so much because we are now more scientific, as because it is not a “Jesus-centered” approach to divine communication. Secondly, our interest in the meaning of e.g., creation passages should be less about their original concerns and more about the meanings Jesus (and his New Testament apostles) drew out from them. There is, moreover, clearly an ethical development from Old Testament to New Testament, which we understand from Jesus’ “But I say unto you ...,” to be approached through a “redemptive-movement hermeneutic.” If, however, God has “spoken to us in these last times by a Son, then on

ethical issues he (and his chosen apostles) were fully enlightened, and we cannot advance ethical enlightenment through science. Any changes in morally-based action will arise from diverging cultural situations, rather than from any change in the ethical principles being applied within them. Technology may bring some new ethical issues, but deriving ethics from science remains a naturalistic fallacy.

James Clerk Maxwell and George Gabriel Stokes: A Comparison

Maxwell and Stokes made several enduring contributions to physics in the 19th century and they are widely taken as examples of British Christian scientists of the Victorian era.¹ Both did fundamental work in physics and they influenced related fields such as acoustics.² The purpose of this paper is to contrast their approaches to issues pertaining to science, religion, and the academic profession by drawing on different sources than referenced in biographies of Maxwell and Stokes.

This investigation was made feasible by recently published correspondence and by comparison with biographies of contemporaries. For example, while it is known that Maxwell was personally acquainted with the New Testament scholars B. F. Westcott, F. J. A. Hort, and J. B. Lightfoot, there seems to be no recognition by biographers of Maxwell's influence on Westcott.³ Stokes's thought on issues of science and religion is evident from his published lectures (some having been reviewed by B. B. Warfield). While Stokes served as the president of the Victoria Institute (concerned with science and "truths in Holy Scripture"), Maxwell declined to join (as has been noted by J. McNatt), evidently from concerns over rapid changes in science. Some conservative Christian influences on Maxwell will also be clarified.

¹Compare P. Theerman, "James Clerk Maxwell and Religion," *Am. J. Phys.* 54 (1986): 312; and D. B. Wilson, *Kelvin and Stokes* (Bristol: Adam Hilger, 1987) or search ASA or Google.

²For Maxwell & acoustics see: P. L. Marston, *J. Acoust. Soc. Am.* 109 (2001): 2437.

³B. F. Westcott, *The Gospel of Life* (London: Macmillan, 1892).

Evolving Concepts of Nature and the Beginning of Human Life

The US Supreme Court once asked Christian denominations when human life begins so they could accord the rights and protections due persons under the Constitution. In retrospect, the Christian denominations could not reach agreement on the answer because traditional views of human origins took shape long before the details of procreation were known. What is needed is a concept of nature that gives intrinsic value to human life without reducing human personhood to chromosomes at conception. Nature in science and theology occupies a formal position at the border between them. New Testament writers used it conventionally, borrowing infrequently from the province of Jewish apologetic to show that Gentiles obey laws "by nature" (Rom. 2:14), while equally critical of this tradition by applying the same term to Jewish Christians who were sinners "by nature" (Eph. 2:3). With the rise of modern science, the concept of nature came to stand for the domain of regularity and measurement free from moral and ethical values. G. E. Moore epitomizes the modern view of nature with his criticism of naturalistic fallacies. However, the present ecological crisis offers science and theology a new appreciation of nature. Instead of a value free sphere, nature is now valued as that which sustains life. Holmes Rolston III typifies a theological response to the ecological crisis with his notion of "cruciform nature," as the experience of life persisting in the midst of perpetual perishing. The purpose of this paper is to apply his concept of cruciform nature to bioethical issues.

Comparison of Christian Perspectives on Human Embryonic Stem Cell Research

Human embryonic stem cells (hES) were isolated in 1998 and are widely believed to hold promise in alleviating medical conditions ranging from Parkinson's to diabetes. This tremendous potential has engendered a great deal of support from various quarters of society. In the United States, public figures such as Nancy Reagan and Christopher Reeves have announced their support for research efforts. However, since the source of stem cells—human embryos—are destroyed, objections to hES research have been raised, particularly in the Christian community. Although the moral status of embryos has been central to the Christian debate, theologians have taken varying views on hES research. In this paper we explicate the basic arguments that frame the stem cell debate and examine

Parallel Session V-B
Sunday, July 25
3:30 PM–5:30 PM
Room 106, NW Bldg.

James Clerk Maxwell and George Gabriel Stokes: A Comparison

Philip L. Marston
Physics Department
Washington State University
Pullman, WA 99164-2814
marston@wsu.edu
509.335.5343

Parallel Session III-B
Saturday, July 24
1:45 PM–3:45 PM
Room 113, NW Bldg.

Evolving Concepts of Nature and the Beginning of Human Life

Bruce McCallum
Medical College of Wisconsin
Anesthesiology M4340
8710 Watertown Plank Road
Milwaukee, WI 53226
mccallum@mcw.edu
414.456.5682

Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.

Comparison of Christian Perspectives on Human Embryonic Stem Cell Research

Nathaniel E. Miller
Department of Biology
Seattle Pacific University
3307 3rd Ave. West Ste 205
Seattle, WA 98119
nmiller@spu.edu
206.782.8869

*Parallel Session III-B
Saturday, July 24
1:45 PM–3:45 PM
Room 113, NW Bldg.*

Virtue Ethics: Viewing the Early Human Embryo through Anabaptist Eyes

Roman J. Miller
Eastern Mennonite University
1200 Park Road
Harrisonburg, VA 22802
millerrj@emu.edu
540.432.4412

*Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.*

Gasoline Consumption and Stewardship: A Survey of Christian Choices for Automobile Transportation

Ruth Douglas Miller
Department of Electrical and
Computer Engineering
261 Rathbone Hall
Kansas State University
Manhattan, KS 66506-5204
rdmiller@eece.ksu.edu
785.532.4596
and
Ian Douglas Miller
Student

*Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.*

Desert Restoration Efforts in Joshua Tree National Park: Utilization of Woody Legumes and Rhizobia

the perspectives of three contemporary Christian theologians on stem cell research. In analyzing their views, we suggest that despite disagreements in permissibility and theology, these Christian authors have framed the debate with a Kantian deontology understanding of personhood. Furthermore, their articles suggest that a Christian approach to hES cell research stresses that humans are individuals in community with God and others, and that we have a responsibility to protect the weak and voiceless in our community. Despite these theological commonalities, our authors disagree. Likewise, we tentatively conclude that given current scientific understanding hES research is ethically sound and should be pursued.

**Virtue Ethics:
Viewing the Early Human Embryo through Anabaptist Eyes**

The perceived status of the early human embryo is a defining issue in contemporary bioethics. Early human embryos are currently viewed as optimal sources for deriving experimental pluripotential stem cell cultures and for future therapeutic purposes. Justification for this work is often based on utilitarian arguments and the assignment of a “non-personage” status to the early human embryo. In contrast, some have used a rule-derived ethical system to argue a sacred status of the early embryo. Anabaptist theological perspectives may helpfully inform bioethical approaches for the broader public. Early Anabaptists advocated the transforming and enabling experience of ontological grace, the authority and power of the voluntary Christian community committed to discipleship, and the capacity of agape love to transform human relationships. In bioethics these values of Anabaptism may be capsulated as the ethics of being, relationship, and action. The Anabaptist virtue ethic of being emphasizes the kind of person one ought to be. Virtue flows from character into actions that empathically express value and vulnerability for all humans regardless of their ontological state of being. The early Anabaptists understood “*gelessenheit*” (humble submission) as a foundational existential Christian virtue. This ethical virtue of being is the beginning point of doing bioethics that gives self-image, understanding of others, existential relationships, and moral actions. This Anabaptist ethos moves bioethical discernment regarding the status of the early human embryo from an objective principled approach to one that is humanistic, empathetic, and communal.

**Gasoline Consumption and Stewardship:
A Survey of Christian Choices for Automobile Transportation**

After the general furor last year over the “What Would Jesus Drive?” campaign, we decided some concrete evidence of resource consumption behaviors in the American church would be useful. We believe our own congregation is probably representative in its consumption habits of most moderate-to-large-sized Midwestern evangelical and probably also “mainline” congregations. If the number of vehicles and EPA mileage estimate of each are known for a given parking lot, as well as the number of people moved by this arrangement of vehicles, we can calculate the per capita “gasoline efficiency” of that group. We will count vehicles for each of the three services our congregation holds on one Sunday, and determine the number of people moved from the church administrative “head count.” We will obtain EPA mileage ratings for all the vehicles from the EPA website. These results will be compared with “best possible” results for moving the same number and sizes of families with the most efficient available vehicles, and also attempt to extrapolate to vehicles that could or may be available in the near future. Results have two applications: one is to ascertain to what extent Christians, called as stewards of God’s resources, practice conservation of those resources any differently than the general population. The second is to extrapolate the potential savings in petroleum resources to a national level. It is hoped that both these results may be stated in a way to help convince the Christian community that conservation is possible, practical and godly.

**Desert Restoration Efforts in Joshua Tree National Park:
Utilization of Woody Legumes and Rhizobia**

Desert Restoration is a field of ecology that has not been extensively studied. Factors including mining, agriculture, and tourism have changed the desert from how God created it to be. As a result, the deserts are quickly being depleted of native vegetation. Woody legume plants, with their deep root systems, tend to thrive well in arid lands. Their partnership with the soil bacteria, rhizobia,

allows them to not only proliferate in the desert but also to promote other plant life. Rhizobia provide needed nitrogen, a nutrient that is limited in arid soils, to the legume through root nodules. By comparing a disturbed desert site with that of a site that has had minimal human impact, a parallel may be made. To help start the proliferation of woody legumes in a disturbed desert site, it is necessary to know which species of rhizobia partner with a particular species of woody legume. This is accomplished by performing characterization tests on rhizobia; tests such as culturing on presumptive media, Gram staining, and carbon-source testing. Local desert soil was collected and rhizobia extracted. It was found that by using the above-mentioned characterization tests, the rhizobia could be placed into species-specific classes. We are continuing these tests and nodulation assays, in hopes that the optimal legume-rhizobia partnership can be found and a natural succession of desert life jump-started. This project may help to ensure that sometime in the near future we will be able to enjoy the desert as God intended it to be.

God's Two Books and God's Image

The metaphor of God's "two books," nature and Scripture, has often been used in discussions about the possibility of knowledge of God. Supported by appeal to Psalm 19 and other texts, it seems to validate some type of natural theology. There are, however, questions that have to be answered if we are to use such a concept properly, questions that have often not been considered by those who appeal to this metaphor. Is "book" language the best one for a Christian understanding of revelation? To what extent does the Bible support the two books concept? And perhaps most importantly, if the basic idea is correct, does it matter in which order we "read" the books? This last question can be rephrased to bring it into contact with the theme of this meeting: Who is able to understand the books? Can the book of nature reveal something of God to anyone, or is such revelation (which must be distinguished from scientific knowledge of nature itself) accessible only to those in whom there has been some renewal of the image of God? I will argue that the two books metaphor is legitimate but must be qualified and used with care. Attention to its limitations will enable those involved in science-theology dialogue to avoid the dangers of naïve natural theology. An appropriate natural theology is not independent of God's revelation in Christ, but results from viewing nature in the light of that revelation.

To Live as Gods or as Creatures? The Paradox of Environmentalism in a Self-Referential Age

This project began with the premise that our current "environmental crisis" is not simply a crisis within culture ... it is rather a crisis of culture itself: we have not yet learned what it is to be creation.¹ What, then, is "postmodern environmentalism?" Perhaps the most ambitious answer is that postmodern environmentalism (PE) represents an important paradigm-shift of consciousness to a transformed worldview in which our relationship and responsibility to Earth is elevated to a new "third commandment" with the same top-billing status as those of human-God and human-human. However, PE is a riddle. Because in postmodernity, authority is essentially self-referential, all "privileged" propositions are presumed illegitimate. Nothing is simply true in the postmodern condition. Yet—and here is the conundrum—at the same time and with equal vigor, PE claims that environmentalism ("saving Earth") must be more than just one more choice, must be privileged, is in fact simply true. Because this paradox lies at the very heart of postmodernity itself, exploring its character and implications is essential to understanding the environmental project and its likely 21st-century trajectory. When relatively "orthodox" young Christians begin to rate environmental and human well-being as equivalent in importance, and even to question a paradise reserved exclusively for people, it seems fair to claim that "we are all postmoderns now."²

Secular and Christian environmentalists are equally "postmodern" in rejecting oppressive hegemonies but therein also lies a temptation to live untethered, "as Gods." Secular environmentalism appears deeply problematic: is it really possible to live "as creatures" absent such now-rejected ideas as (a) being limited and (b) being anchored to (c) creation itself? Christian environmentalism faces its own very real special concerns. Just to mention one, it is possible that our elevation of human-Earth to the status of a new "third commandment" is merely a disguised abandonment of our divine and human obligations. The latest phase of a long-term investigation into the worldviews of college and university undergraduates, the study reported on here built upon

Heather Elizabeth Mitchell
University of Redlands
1231 E. Colton Avenue M409
Redlands, CA 92374
livin4him_82@yahoo.com
909.953.0435

Parallel Session VI-B
Monday, July 26
9:00 AM–10:45 AM
Room 106, NW Bldg.

God's Two Books and God's Image

George L. Murphy
St. Paul's Episcopal Church
Akron, OH
Mailing Address:
538 Cynthia Lane
Tallmadge, OH 44278
gmurphy@raex.com
330.633.4376

Parallel Session II-C
Saturday, July 24
10:50 AM–12:20 PM
Room 106, NW Bldg.

To Live as Gods or as Creatures? The Paradox of Environmentalism in a Self-Referential Age

James Norwine
Department of Physics/
Geosciences MSC 164
Texas A&M University-Kingsville
Kingsville, TX 78363
kfjm00@tamuk.edu
361.593.3589

previous work by exploring students' personal values and Weltanschauungen concerning the human relationship to the environment. During fall and winter of 2003–2004, surveys were administered to a convenient sample of undergraduate students at a number of state-supported and church-affiliated tertiary institutions. Some findings were:

1. Many students possess worldviews which are admixtures of aspects reflective or representative of Traditionality, Modernity, Radical Postmodernity and Transmodernity;
2. Sometimes significant differences exist between the responses of the students at church-affiliated and those at secular institutions;
3. In other areas, there exists striking agreement among the students' responses; and,
4. While a "postmodern" degree of personal identification with the well-being of the environment is common, the responses to a variety of related survey-statements (e.g., Is coercion okay in order to "save the Earth"?) suggests that the devil(ish challenges) may indeed be in the details.

¹Norman Wirzba, *The Paradise of God* (New York: Oxford, 2003).

²Jim Norwine and Jonathan Smith, *Worldview Flux* (Lanham, MD: Lexington, 2000).

Development of the "Fruit of the Spirit" Related to Information from Brain Mapping

This paper is a summary of my personal journey to a mental picture combining biblical and scientific views. Paul informs me that development of the ethical standards of Jesus come through "renewing of the mind." Stimulating a group of brain cells makes them more sensitive and thus more easy to activate in the future. Stimulation of different areas of the amygdala begets fear, rage or appeasement. It is the relative weakness of cortical signals that cause children to have far more emotional outbursts than adults. Infants cannot control their emotions because the axons that carry signals from the cortex to the limbic system have yet to grow. And the cells in the prefrontal lobe, where rational processing of emotion takes place, do not mature fully until adulthood. The amygdala are mature at birth and capable of full activity. The immature cortex is no match for the powerful amygdala. With training, the cells in the prefrontal lobe (thinking part of brain), where rational processing of emotion takes place, grow and connect to the pathways giving feedback to the limbic system (feeling part of brain). With time, beliefs, Scripture, parental and Christian examples etc. have formed and firmly established these thoughts. The tug of war between the "will to pleasure" of the emotional brain and the "will to meaning" of the prefrontal lobe seems to be the vehicle God uses to bring about our maturity.

Conservation and Restoration in New Zealand: Unique Biota and Unique Challenges

This talk will give an overview of conservation and restoration in New Zealand, with a few selected case studies. New Zealand has a wide and growing reputation for conservation and high environmental standards. However, this reputation hides some serious environmental problems. Due to the long isolation of the New Zealand landmass and the absence of terrestrial mammals, the flora and fauna of New Zealand have developed unique characteristics through speciation. The introduction of mammalian browsers and predators by human colonizers over the last 1,000 years has led to the extinction of many "naïve" endemic species. Many more are threatened and increasingly vulnerable. Dramatic conversion of forest cover into agricultural land following European colonization led to a high-profile conservation movement in the 1970s. This resulted in clear felling banned on public land, and the formation of a world-leading Department of Conservation. Currently one third of New Zealand's land area is protected conservation land with no logging permitted. However, the combined effect of a suite of invasive species is leading to ecosystem collapse in some areas. Conservation action in New Zealand is now predominantly focused on reducing or removing the threat of these introduced species. Increased community involvement in local conservation projects is assisting the Department in reaching goals of biodiversity protection. Three case studies will be presented: one of forest collapse in the Central North Island; one of a community-initiated island restoration project; and one of science aiding the conservation of a critically endangered parrot species, the *kakapo*.

Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.

Development of the "Fruit of the Spirit" Related to Information from Brain Mapping

Samuel D. Olsen
Kong Haraldsgate 33A N-4041
Stavanger N-4041 Norway
Samuel.D.Olsen@rf.no
004751875200

Parallel Session III-C
Saturday, July 24
1:45 PM–3:45 PM
Room 106, NW Bldg.

Conservation and Restoration in New Zealand: Unique Biota and Unique Challenges

David E. Pattimore
Northern Conservation Officer
Royal Forest and Bird Protection
Society of NZ, Inc.
PO Box 8138
Symonds St.
Auckland, New Zealand
d.pattimore@forestandbird.org.nz

The Metaphysics of Personal Agency

Do persons have any causal agency, or is all the real causal work done at the level of neural events? After laying out what makes the notion of personal agency fundamentally mysterious, I'll contend that it is not logically incoherent and give a couple of reasons to think that persons do have genuine causal efficacy. The paper will then explore what this entails about the metaphysical status of persons. If one embraces a mind/body substance dualism one must yet account for the functional dependence of thoughts and decisions on neural events. If one embraces a mind/body monism that views thoughts as properties of higher-level brain events, and if one yet accepts persons as having genuine causal agency, then one must grant a causal power to these higher-level events that is not reducible to lower-level events, yet not independent either. Although attractive in many respects, the latter is inadequate if it be thought that the personal agent is simply this complex of higher-level events.

The Awesome Auditory System

Man was made in the image of God. So then, can we investigate the workings of the brains of humans and expect to find evidence for that image? I think not. Rather we find that the brains of humans are remarkably similar to the brains of other mammals. Yet by scientific investigation one can encounter such wondrous findings that one can be filled with a sense of awe and worship for the Creator. I study the mechanisms of hearing in the brains of mammals and I will recount some of the more spectacular and awesome findings that I have come across in the field of auditory neuroscience. There are impressive architectural structures in the brain of which I'll show some slides. The bats that I study have the remarkable ability to echolocate, yet do so using the same brain structures for hearing as the rest of us mammals. We are in the process of discovering their vocal communications. I'll bring some recordings. And the molecular machinery of active tuning in the hair cells of mammals has recently been elucidated. This is of great interest to me, because an active mechanism of inner ear tuning was postulated by iconoclast Thomas Gold and rejected by the auditory establishment more than 50 years ago.

Challenges of Alzheimer's Disease

Alzheimer's disease (AD) is the most common form of dementia in the elderly. There is no cure, and it is eventually fatal. Current medications can hold back its development for a few months in some patients, as can (possibly) an active mental and physical lifestyle. There are rare inherited forms of the disease, and common variants in at least one gene (ApoE) affect susceptibility. The onset of AD is extremely age-dependent, affecting below 5% at age 60 and 20% at age 80. Its prevalence is rising, therefore, in all parts of the world where life-expectancy is increasing (i.e., virtually everywhere), especially so where the birth-rate has declined, as in the West. Alzheimer patients are usually looked after at home by relatives but eventually need full-time professional care. So there are daunting challenges (the first two will be highlighted):

1. for medical scientists to develop better treatments (there are some encouraging signs, but few for the near-term)
2. for neuroscientists to understand the brain better and AD better (much has been done; much more is still needed)
3. for planning by society (legislature, taxpayer, and social care system)
4. for churches to minister to and give support to patients and caregivers;
5. patients, how to meet the spiritual needs of those at the various stages of the disease
6. caregivers, facing the difficulties attendant upon the huge changes occurring in the "person" they care for
7. AD is a test-bed for controversial issues, including genetic susceptibility testing, medical insurance implications, "living wills," euthanasia.

*Parallel Session VI-C
Monday, July 26
9:00 AM–10:45 AM
Auditorium, NW Bldg.*

The Metaphysics of Personal Agency

Peter E. Payne
University of Michigan
2035 Georgetown Blvd.
Ann Arbor, MI 48105
pep@umich.edu
734.665.8157

*Parallel Session II-A
Saturday, July 24
10:50 AM–12:20 PM
Auditorium, NW Bldg.*

The Awesome Auditory System

Carl Resler
Section of Neurobiology
140 Patterson Lab / C0920
2400 Speedway
Austin, TX 78712
resler@mail.utexas.edu
512.471.4849

*Parallel Session I-B
Saturday, July 24
9:00 AM–10:30 AM
Room 113, NW Bldg.*

Challenges of Alzheimer's Disease

Hugh Reynolds
Department of Neuroscience
Institute of Psychiatry
De Crespigny Park
Denmark Hill
London SE5 8AF UK
h.reynolds@iop.kcl.ac.uk
+44(0)2078480261
+44(0)77080017

*Parallel Session I-B
Saturday, July 24
9:00 AM–10:30 AM
Room 113, NW Bldg.*

**Concepts of Competency in Medical Decision-Making:
A Critique from a Christian Perspective**

James J. Rusthoven
15 Lovers Lane
Ancaster, ON L9G 1G4
jrusthov@bserv.com
905.648.7936

*Parallel Session II-A
Saturday, July 24
10:50 AM–12:20 PM
Auditorium, NW Bldg.*

Metaphor Processing in the Right and Left Hemispheres

Gwen L. Schmidt
Cognitive Psychology
Colorado State University
Fort Collins, CO 80523
gwen.schmidt@colostate.edu
970.491.5009

*Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.*

Evolution of the Eukaryotic Spliceosome and the Hidden Nature of God

Kristopher L. Schmidt
Trinity Western University
7600 Glover Road
Langley, BC V2Y 1Y1
kris.schmidt@twu.ca
604.888.7511 x3204

Concepts of Competency in Medical Decision-Making: A Critique from a Christian Perspective

In the western, developed countries, the concept of competency to make medical decisions has been developed closely with the concept of autonomy. In this context, autonomy has usually been conceived within the philosophical framework of liberal individualism wherein the subject or patient is considered to have the right to consent or dissent to receive medical care or participate in clinical research without need of or fear of outside influence by other persons. For those considered possibly less than fully competent, formal instruments have been developed to distinguish and measure attributes of competency such as understanding, reasoning, and appreciation. However, the relative importance of these attributes in specific decision-making situations has made their practical application difficult and there is disagreement as to the linkage of various attributes with different incompetency states. Efforts to determine competency with such scientific precision within a positivistic framework have often detracted from relational aspects of decision-making that are particularly important to other cultures, namely the importance of family and community relationships. While the legalization of surrogate decision-makers attempts to designate a competent person in close relationship with a person deemed less than fully competent, the importance of relationships for fully competent patients making medical decisions is often downplayed or ignored. Relational autonomy connotes the need to include those in close relationship with the subject or patient when making medical decisions, regardless of competency status. Moving away from an individualistic concept of autonomy, relational autonomy will be forwarded as a normative concept that should be included in developing a Christian perspective regarding competency in clinical medical decision-making.

Metaphor Processing in the Right and Left Hemispheres

It has long been known that language processing is lateralized to the left hemisphere of the brain. However, recent research, including work with both clinical and non-clinical populations, has highlighted the possible contribution of the right hemisphere to various aspects of language processing. Evidence has emerged for right hemisphere involvement in language-related tasks such as humor comprehension, drawing inferences, understanding sarcasm, and interpreting metaphors. A metaphor is a type of figurative language; for example, “My job is a jail” (my job is restricting and confining). This paper presents current work done to further explore the neural correlates of metaphor processing. In the first study, participants made plausibility judgments on metaphorical, literal and simple sentences with the sentence endings presented in the right and left visual fields. Since the right visual field projects entirely to the left hemisphere and vice versa, it is possible to make conclusions about the relative contributions of the hemispheres in the processing of the sentences. Results supported the notion that the right hemisphere is involved in the processing of metaphors and semantically distant words. The purpose of the second study was to explore the effects of metaphor difficulty and metaphor familiarity on the neural correlates of metaphor processing. A functional magnetic resonance imaging (fMRI) study was conducted where participants read metaphors that varied in difficulty and familiarity, literal sentences, and pseudoword sentences while their brain activity was recorded in the fMRI scanner. The resulting areas of brain activation indicated that both the right and left hemispheres contribute to a broadly distributed semantic processing system that includes metaphor processing, and that is mediated by the factors of difficulty and familiarity.

Evolution of the Eukaryotic Spliceosome and the Hidden Nature of God

Recent advances in protein isolation techniques and mass spectrometry reveal that the eukaryotic spliceosome (responsible for the removal of introns from eukaryotic genomic DNA) is composed of several snRNAs (small nuclear ribonucleic acids) and >300 essential accessory proteins, making it one of the most complex macromolecular machines in the cell.¹ Some Intelligent Design Theorists and other proponents of a non-Darwinian ontogeny suggest that evolution by natural selection cannot explain the development of complex macromolecular machines like the spliceosome because they consider them to be irreducibly complex—composed of several independent components where the removal of any one of the parts would cause the system to cease to function.

Bioinformatics tools (multiple genome comparisons, NCBI Blastp) show that several of the accessory proteins of the spliceosome have their origins in Archaeobacteria and that a Darwinian explanation of the evolution and development of the spliceosome is plausible. Furthermore, the presence of Darwinian explanations of ontogeny to counter the biblical account of the Creation are a necessary part of the Christian pursuit. Without counter explanations to the biblical account, belief in the existence of God as Creator would be forced on everyone, severely limiting the potential for a free and voluntary response to God's truth and intervention in the world.

¹M. S. Jurica and M. J. Moore, "Pre-mRNA Splicing: Awash in a Sea of Proteins," *Mol Cell* 12 (2003): 5–14; and T. W. Nilsen, "The Spliceosome: The Most Complex Macromolecular Machine in the Cell?" *Bioessays* 25 (2003): 1147–9.

The Failure of Hugh Ross's Concordism and a Biblical Alternative

Hugh Ross has written some good apologetical books in his own field of astronomy, but in *The Genesis Question* he stepped out of his field of expertise and made some very serious errors. Although he offers some good answers to the speculations of creation science, his interpretation of Genesis 1 and his interpretation of the Flood as a local event are private interpretations which are at odds with the nearly unanimous interpretation of Old Testament scholars across the theological spectrum. Even more damaging to his concordism is his attempt to date Adam earlier than 30,000 BP, to date the Flood at 30,000 to 20,000 BP, and to date the Tower of Babel at 30,000 to 11,000 BP. Dates of such magnitude are, admittedly, necessary to make the Bible harmonize with modern anthropology and archaeology; but if all of the biblical data (apart from the genealogies) are accepted as historically accurate, archaeology shows that all of Ross's dates are severely anachronistic. As a result Ross has inadvertently made clearer than ever the conflict which exists between Genesis 1–11 and modern science. A biblical alternative sanctioned by the teaching of Jesus will be presented as a better option for relating modern science to the Bible.

A Correlation Theology Analysis of Embryonic Stem Cell Research

This research uses a critical correlation theology method to integrate science and religion. The method considers current practices, determines key questions arising from these practices, accesses Christian teachings and traditions, and finally suggests new theological critiques of these practices. Practice-theory-practice models create more thoughtful theological positions than the traditional theory-practice model when considering recent scientific advances. First, a brief description of current embryonic stem cell research is provided. Second, key ethical and theological questions that arise from current practices are identified; particularly tension-creating questions. Third, biblical and early Christian resources are examined and chosen; resources are selected based upon their relevance to the key questions. Hermeneutic options are then suggested to merge current embryonic stem cell research with Christian beliefs. Finally, theological positions and guidelines are suggested for understanding embryonic stem cell research. One feature of this model is that authorial presuppositions are explicitly considered during the key question development phase. Another feature is that a variety of theological positions can emerge, based upon the presuppositions. When several positions emerge, they challenge individuals to re-examine the coherence and validity of their presuppositions. A highlight of this research is that while the co-authors begin with similar presuppositions, they discover that they disagree on some basic conclusions concerning a Christian perspective on embryonic stem cell research.

Neuroscience, Theology and Unintended Consequences

Many theories in the social and personal sciences, like laws passed by legislatures, have unintended consequences. These often play hob with the desired and proposed results. This unfortunate effect is noted in the views of evangelical psychologists who seek to be fully accepted professionally by adopting the foundational view of the majority of contemporary neuroscientists. They hold that soul or mind is no more than what emerges from complexly organized matter, that is, that thought, memory and similar mental activities are strictly a function of brain. While secular scientists are often reductive or naturalistic physicalists, evangelicals have to posit a non-material deity as an absolute minimum, even though God cannot be part of empirical science. The resulting nonreductive physicalism has been criticized on grounds of its incompatibility with the resurrection

Parallel Session IV-A
Sunday, July 25

1:00 PM–3:00 PM
Auditorium, NW Bldg.

The Failure of Hugh Ross's Concordism and a Biblical Alternative

Paul H. Seely
1544 SE 34th Avenue
Portland, OR 97214
phseely@aol.com
503.236.1339

Parallel Session III-B
Saturday, July 24

1:45 PM–3:45 PM
Room 113, NW Bldg.

A Correlation Theology Analysis of Embryonic Stem Cell Research

Paul and Cahleen Shrier
Azusa Pacific University
Department of Religion and
Philosophy
901 E. Alosta Avenue
Azusa, CA 91702
pshrier@apu.edu;
cshrier@apu.edu
626.815.6000 x5628

Parallel Session VI-C
Monday, July 26

9:00 AM–10:45 AM
Auditorium, NW Bldg.

Neuroscience, Theology and Unintended Consequences

David F. Siemens, Jr.
Canyon Institute for Advanced
Studies
Grand Canyon University
Phoenix, AZ

David F. Siemens, Jr.
Mailing address:
2703 E. Kenwood Street
Mesa, AZ 85213-2384
dfsiemensjr@juno.com
480.834.9188

Parallel Session I-C
Saturday, July 24
9:00 AM–10:30 AM
Room 106, NW Bldg.

**Nature, Technology and the
Imago Dei: Mediating the
Nonhuman through the
Practice of Science**

Bret D. Stephenson
Baylor University
Environmental Studies
Department
One Bear Place #97266
Waco, TX 76798-7266
Bret_Stephenson@baylor.edu
254.710.4384

Parallel Session IV-B
Sunday, July 25
1:00 PM–3:00 PM
Room 106, NW Bldg.

**Global Environmentalism in
the Workplace and in the
Church: How Can We “Just
Get Along” in God’s
Kingdom?**

Duane Stevens
Department of Meteorology
University of Hawaii
2525 Correa Road
Honolulu, HI 96822
dstevens@hawaii.edu
808.956.2564

Parallel Session II-B
Saturday, July 24
10:50 AM–12:20 PM
Room 113, NW Bldg.

**Divine Assistance For
Healing’s Immanent
Activity**

Donald R. Strombeck
6626 Camino Del Sol Drive
Rancho Murieta, CA 95683
strombec@calweb.com
916.354.2636

of the body taught by Paul; with spiritual beings, such as angels and demons; with the free will required for moral accountability; and with the necessary conditions for eternal life. Its adherents have also been charged with ignoring any Scripture passage that does not fit their dogma. None of these criticisms has noted the even more fundamental problem noted here: nonreductive physicalism makes the Incarnation impossible. The grounds for this conclusion are explained. Such a conclusion is obviously not intended by those claiming to be orthodox.

**Nature, Technology and the *Imago Dei*:
Mediating the Nonhuman through the Practice of Science**

Questions concerning the relationship between humanity created in the image of God and its connection to our increasingly technological nature have often been limited to concerns germane to bioethics and eschatology. In this vein, theologians have questioned the wisdom of genetic engineering and the wider role of technology in the redemption of all creation. In this paper, I seek instead to question the role of technology, primarily as it is employed in scientific practice, in the mediation between humans created in the image of God and the nonhuman creation. I accept the position that human personhood cannot be separated from our relationship with the multiplicity of nonhumans with whom we share the common realm. Moreover, I seek to uncover the positive aspects of a technological mediation which participates in our increasingly technologized personhood. This study will draw heavily on recent studies in the sociology of technology, but particularly the work of the proponents of Actor-Network Theory (ANT) such as Bruno Latour and John Law. ANT is of particular theological interest in light of the more recent Trinitarian theologies of creation and culture, such as the work of Colin Gunton, in that ANT similarly maintains that entities (human, non-human, and technical) draw their being through dynamic relations with other entities. Therefore, the paper seeks to open an interdisciplinary dialogue between theological anthropology, the doctrine of creation, and these fascinating sociological accounts of the technological practice of science.

**Global Environmentalism in the Workplace and in the Church:
How Can We “Just Get Along” in God’s Kingdom?**

Many “Christian/scientists” who seek truth about our environment, work in a collegial research university setting with non-Christian colleagues; global warming is a current “hot topic.” Simultaneously they worship within a local body of believers who share their theology and values, but sometimes *not* their scientific world view. These vocational believers are often called to share their insights and findings within both communities. In order to communicate within their profession, they teach, publish and present papers at conferences. Discussion and debate are typically conducted on an intellectual plane. Communication within their Christian family in the local church involves one-one interactions and small-group discussions. These discussions can be every bit as engaging and controversial as the former because of the sometimes-perceived threat of “science” on personal world view and/or a common, locally accepted interpretation of the fundamentals of the Christian faith. Because of the personalized nature of belief systems, discussion can devolve to an emotional and antagonistic level. We examine a case study in which some of the personal and intellectual tensions for the Christian/scientist are addressed. The broader relationships to national constituencies such as the home-school movement and conservative Christian radio ministries are also treated. An operating local model of supportive Christian fellowship within the university setting is presented.

Divine Assistance For Healing’s Immanent Activity

Faith’s promotion of healing is a miracle until God reveals further understanding of human biological design. Then God shows healing is by immanent mechanisms his grace endows. God can assist in our immanence for healing by empowering humans to develop relationships with him. Thereby, transcendence, through faith’s experiences of consciousness and information, directs psychophysiological healing. Physiologic mechanisms involve messenger molecules acting on receptors at the cellular level for mind-body communications to initiate early gene expression for protein synthesis and stem cell activation, promoting healing and replacement of damaged cells. Genetic determinants of existing states can also be modified by mind-body communications to

regulate healing. Existing states are determined by “software” of immanent mechanisms, genetic information that one can consciously modify. For example, psychophysiological cues can alter existing states of immune function at the cellular-genomic level to determine disease and healing. When such cues are manifestations of faith, healing that follows may be due to the placebo response. Belief in placebos being the “most effective medication known to science ...” suggests that humans neglect their God-assigned role to be stewards of his gifts. People squander resources to seek healing and longer lives from innovations of science rather than from trust in the Lord. Medical science, trusting in human ability, does not increase human life expectancy. Levels of financial support for health care do not correlate with longer and healthier lives. Having hope in the Lord includes trusting in him to give meaning for what he does with our lives.

Descartes’ Error Revisited: The Pineal Gland, Cingulate Cortex, and the Neuroscience of Volition

Descartes’ Error has long been the focus for scientists, philosophers and theologians. How can a nonphysical soul influence and control a physical body? With Descartes’ initial premise that the pineal body acts as the seat of the soul, over three hundred years researchers in the neurosciences have criticized his philosophical assumptions and moved away from substance dualism. With the advent of functional magnetic resonance imaging (fMRI) and other technological advances, a new picture is being formed with several brain regions appearing to network together to act as the underlying substrates of volition and free will. Research on the anterior cingulate cortex will be presented and the theological, philosophical and neuroscientific implications of a potential new seat of the soul will be examined.

Neuroscience and the Image of Man: Arguments for and against Reductionism

Over the last several years, there have been many profound discoveries in the fields of systems and cognitive neuroscience. These discoveries have led to a significant understanding of the neural correlates of perception and decision-making, among other things. These discoveries have, for the first time, given scientists the ability to accurately predict both neural responses and animal behavior. Some examples of these discoveries are image reconstruction from neural signals in the visual thalamus (Stanley, et al., 1999); the arbitrary change of the percept of motion in laboratory monkeys (Salzman, et al., 1990); the use of functional magnetic resonance imaging (fMRI) as a tool to find “high level” visual areas in the human brain (Spiridon & Kanwisher, 2002); and neural correlates of expected reward and decision making (Glimcher, 2002; Gold & Shadlen, 2002). These examples illustrate the success of the reductionist paradigm that pervades neuroscience research. However, this paradigm is fundamentally limited in its ability to explain the essence of the human mind. For the materialist, mind and consciousness are emergent properties of the brain, and therefore, eventually subject to complete explanation by neural correlates and neural computational models. In other words, the new view of the mind, considers all thought to be biological and neural, not disembodied and abstract. And yet professor of linguistics George Lakoff (2003), a champion of embodied realism, considers awareness and qualitative experience to “stand outside the neural computation.” Thus, neural computation is necessary but not sufficient for describing awareness and qualitative experience. In addition, there remain the questions of freedom, moral values, art and culture, all of which constitute the very essence of humanity. In sum, the materialist tries to explain the higher (spirit) in terms of the lower (nature), whereas metaphysics and religion attempt to explain the lower in terms of the higher which we argue is a more satisfactory approach, providing a better explanation of the brain-mind paradox. This paper will review a few reductionist paradigms and explore the validity of explaining the lower nature from a higher perspective. To this end we make use of models and illustrations from nature (Witten, 1996; Glazer, 2001).

Emotional Arousal Modulates Memory for Contextual Information

Many researchers have demonstrated that memory for emotionally arousing events (e.g., seeing a car accident) is enhanced relative to memory for neutral events (e.g., seeing a parked car). Less

*Parallel Session III-A
Saturday, July 24
1:45 PM–3:45 PM
Auditorium, NW Bldg.*

Descartes’ Error Revisited

William M. Struthers
Wheaton College
501 E. College Avenue
Wheaton, IL 60187
William.M.Struthers@
wheaton.edu
630.752.7046

*Parallel Session I-A
Saturday, July 24
9:00 AM–10:30 AM
Auditorium, NW Bldg.*

Neuroscience and the Image of Man: Arguments for and against Reductionism

Jonathan O. V. Touryan
Vision Sciences Group
UC Berkeley
2466 Hilgard Avenue #302
Berkeley, CA 94709
touryan@uclink4.berkeley.edu
and

Kenell J. Touryan
National Renewable Energy
Laboratory
Golden, CO
Mailing Address:
PO Box 713
Indian Hills, CO 80454-0713
ken_touryan@nrel.gov

*Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.*

Emotional Arousal Modulates Memory for Contextual Information

Sharon R. Touryan

Sharon R. Touryan
 Department of Psychology
 3210 Tolman Hall #1650
 University of California
 Berkeley, CA 94720
 oceanair@socrates.berkeley.edu
 510.643.5371

Parallel Session VI-C
Monday, July 26
9:00 AM–10:45 AM
Auditorium, NW Bldg.

**If the Spiritual Soul Were
 Beyond the Scope of
 Physicalism**

Thaddeus J. Trenn
 University of Toronto
 PO Box 639 RR4
 Colborne, ON K0K 1S0
 t.trenn@utoronto.ca or
 ttrenn@eagle.ca
 416.978.5047

Parallel Session II-C
Saturday, July 24
10:50 AM–12:20 PM
Room 106, NW Bldg.

**The Good of a Flourishing
 Creation: Seeking God in a
 Culture of Affluence**

David P. Warners
 Calvin College
 3201 Burton Street SE
 Grand Rapids, MI 49546
 dwarners@calvin.edu
 616.526.6820

established is the effect that emotional events have on memory for associated peripheral or contextual details (e.g., the color of the car involved in the accident). One possible hypothesis is that emotion enhances attention, and therefore memory, for the entire event including contextual details. A competing hypothesis is that emotion induces narrowed attention toward the central aspects of the event, improving memory for those central aspects at the expense of memory for the contextual details. To investigate these alternatives, participants were presented with a series of emotional versus neutral stimuli (words or pictures) concomitant with unrelated neutral information (e.g., colored frame or small object) located in the periphery. After a delay, participants' memory for both the central stimuli and the peripheral information was tested. Consistent with other researchers, we found enhanced memory for the emotional words and pictures compared to the neutral ones. However, the influence of emotion on memory for peripheral information was dependent on the modality of the central information. Specifically, memory for peripheral information presented with emotional words was enhanced (relative to that presented with neutral words), but memory for peripheral information presented with emotional pictures was reduced (relative to that presented with neutral pictures). This suggests that emotional arousal focuses attention toward central aspects of an event, and that this narrowing increases as emotional arousal increases.

If the Spiritual Soul Were Beyond the Scope of Physicalism

Could anyone tell? Would anyone care? Does it even matter? Yes! Yes! Yes! At stake is the very heart of Christianity! Enlightened by faith, believers may concur with winsome confidence that God truly exists and that each person is created in the image and likeness of God. These clues are absolutely crucial to fathom just what we are in the eyes of God, a hopeless task if searching in secular darkness from the bottom-up. This is the very crux of the problem.

God is the One *authentically eternal* spirit, in no way physical or subject to any space-time limitations.* Human beings are not *pure* spirit, but *whole-persons* each with a physical body and an interactive soul uniquely endowed with a range of multi-tasked capacities that include animal, rational, and ultimately *spiritual* soul-ness. Now, the spiritual “core” of each person, *in virtue of being created in the “image and likeness of God”* is likewise *authentically eternal* and so cannot die.

Accordingly, manifestations of soul-ness would be expected, directly or indirectly, via normal bodily functions and activities. These could even be measured and detected, as spectacularly exemplified by Persinger's “God-helmet” experiments. Other examples abound within neuroscience and psychology especially regarding “consciousness.” However, if approached from the bottom-up, by means of “physicalism,” soul-ish manifestations intentionally induced and stimulated with the bodily matrix would appear essentially indistinguishable from what might allegedly implicate a “spiritual core.” Physical registration alone could not distinguish locally induced “bottom-up” manifestations from authentic soul-ish manifestations. Inherently limited to *space-time* categories of scientific thought, methodological “physicalism” could not even realistically *comprehend* a “core” spiritual soul that is *authentically eternal*. Following Occam's razor, physicalism would have no valid grounds for even entertaining an *eternal “spiritual core”* to account for experimentally detected soul-ish manifestations. Instead, physicalism must attribute every “soul-ish” manifestation solely to bodily-brain-mind processes of divers sorts.

*Throughout, authentic eternity (timeless) is contrasted with secular pseudo-eternity (infinite/endless time).

**The Good of a Flourishing Creation:
 Seeking God in a Culture of Affluence**

Historically Christians have had difficulty formulating a widely accepted ethic and praxis regarding material wealth. This confusion has roots in the scriptures themselves, where material wealth is both described as a blessing and cautioned as something to avoid. The consumptive, affluent lifestyles enjoyed by many North American Christians today finds strong affirmation in John Schneider's *The Good of Affluence* (2002). Our central response to Schneider's sweeping justification of material affluence is that it is too limited in scope. By focusing on the individual and his/her immediate material context, Schneider seems to overlook God's more encompassing desire for all of creation to flourish. We identify several points of contrast and expansion from Schneider's

perspective using a rubric based on the biblical concept of shalom. These distinctions include the interpretation of God's primary desire for human beings (to flourish materially vs. to flourish in diverse ways); the fundamental nature of human beings (as individuals vs. as members of communities); a prescribed human-creation model (ruler over creation vs. servant within creation); God's primary focus of salvation (human vs. cosmic); and the character of our fundamental governing system (economic system/capitalism vs. natural system/sustainability). We disagree with the notion that material affluence is a cosmic good, but instead suggest its moral standing depends on the social, spiritual and environmental costs it exacts and the relative benefits its use generates. In closing we propose a model based on shalomic living. We neither blindly condemn nor condone material affluence, but propose its presence be evaluated for its contribution to the coming shalom. Material impoverishment and material sustenance can be assessed similarly. We hold that God's desire for human beings to flourish is subsumed by (but not necessarily replaced by) his desire for all of creation to flourish.

Reflections on Symmetry

Theoretical physicists have a great appreciation for the deep symmetries that are inherent in nature. These symmetries range from the obvious spatial symmetry of a snowflake, to the more subtle symmetries of nature associated with invariance properties of physical systems under transformations in abstract mathematical spaces, to the symmetries of nature that are further obscured by the fact that, in the physical world that we experience first-hand, these symmetries exist only in a broken state. The physicist's predisposition to seek only those mathematical representations of physical phenomena that are rooted in symmetry and as such contain a high degree of mathematical "beauty," has proven to be an invaluable guiding principle. The imminent British physicist Paul Dirac has stated, "It is more important to have beauty in one's equations than to have them fit experiment." The intimate relationship that exists between physical systems and mathematically elegant models, sometimes referred to as the "unreasonable effectiveness of mathematical beauty," has been noted by numerous authors. Einstein put it this way: "How can it be that mathematics, being after all a product of human thought independent of experience, is so admirably adapted to the objects of reality?" These issues will be considered from a Christian perspective, beginning with familiar examples of symmetry in nature, and concluding with examples of conformal symmetry in space-time that arise from the author's own research activities in general relativity.

Reconsidering the Multiple Catastrophism to "Reconcile" the Great Flood and the Old Earth

For the last several decades, we saw significant tension and conflict on the discussion of history of the earth among evangelical camps. Creation scientists presented the Noah's Flood as the most dominant cause of nearly all strata and fossils therein, while uniformitarians accepted slow deposition and erosion of strata. But the single global catastrophe cannot be compatible with numerous modern dating results, and particularly, with the data of radioactive dating for the strata and rocks. At the same time, uniformitarianism seems not to be in harmony with biblical records that apparently show the once-for-all change of the surface of the earth and ecological system including human life. In this paper, I propose an elaborated model of the multiple catastrophism that had been originally proposed by French paleontologist G. Cuvier (1769–1832) and forgotten for the last two centuries. Based on the recent studies in geology and radioactive dating technology, this model is to integrate the Great Flood and the antiquity of the Earth. The key idea of the model consists of slow deposition for geological period and rapid erosion of strata by the Great Flood. The rapid formation of a hard rock canyon in Mt. St. Helens is presented as supporting evidence for this model. Of course, other canyons would be interpreted by this model.

Cross-linguistic Influences in Bilingual Acquisition of Russian and English

This study examines linguistic development of a young Russian-English bilingual child. Since the grammars of Russian and English differ on a number of points, it is possible to study cross-linguistic differences and influences in the acquisition of the two languages. Some of these

*Parallel Session V-B
Sunday, July 25
3:30 PM–5:30 PM
Room 106, NW Bldg.*

Reflections on Symmetry

W. Robert Wood

Department of Mathematical Sciences
Trinity Western University
7600 Glover Road
Langley, BC V2Y 1Y1
wood@twu.ca

*Poster Session
Saturday, July 24
4:15 PM–6:00 PM
Room 112, NW Bldg.*

Reconsidering the Multiple Catastrophism to "Reconcile" the Great Flood and the Old Earth

Paul S. Yang

Fosmark Centre
Trinity Western University
7600 Glover Road
Langley, BC V2Y
1Y1shyang@twu.ca
604.513.2121 x3834

*Parallel Session V-A
Sunday, July 25
3:30 PM–5:30 PM
Room 106, NW Bldg.*

Cross-linguistic Influences in Bilingual Acquisition of Russian and English

Julia S. Yarmolinskaya

Julia S. Yarmolinskaya
 Johns Hopkins University
 Cognitive Science Dept.
 3400 N. Charles Street
 Krieger Hall 243
 Baltimore, MD 21218
 yarmolinskaya@cogsci.jhu.edu
 410.516.4945

Parallel Session VI-A
Monday, July 26
9:00 AM–10:45 AM
Room 113, NW Bldg.

Semiotics and Evolutionary Psychology

J. Raymond Zimmer
 5020 S. Lakeshore Drive #3315N
 Chicago, IL 60615
 John.Zimmer@
 advocatehealth.com
 503.643.6882

Parallel Session IV-B
Sunday, July 25
1:00 PM–3:00 PM
Room 106, NW Bldg.

GMOs Incorporated: Norms for Developing and Implementing GMOs That Are Founded on a Holistic Perspective

Uko Zylstra
 Biology Department
 Calvin College
 3201 Burton Street SE
 Grand Rapids, MI 49546
 zylu@calvin.edu
 616.526.6499

differences, which are addressed in the present study, are the acquisition of Russian verbal aspect, English copula verbs, third-person singular verbal morpheme “-s,” and articles. The findings on these four points are compared to the monolingual Russian and English acquisition by children of similar age and to the second language acquisition data from learners of different ages. It was found that on some points, the acquisition of Russian and English by this child is patterned after monolingual peers acquiring Russian or English as their first language, while on others it is more similar to adult acquisition of English as a second language. The results concerning verbal morphology show near-adult mastery of complex morphology of Russian contrasting with a relatively poor mastery of impoverished morphology of English. Cross-linguistic influences are observed in the child’s acquisition of English articles and present tense copulas, both of which are absent in Russian. Finally, the acquisition of the third-person singular verbal morpheme “-s” is found lagging behind acquisition of a number of more complex structures, which is most consistent with English as a second language acquisition data.

Semiotics and Evolutionary Psychology

Charles S. Peirce, a lifelong friend of William James, proposed the idea that psychology could be understood as the human use of signs. Unfortunately, he left only a glimpse of how to proceed. The “nested-sign model” is a relatively straightforward adaptation of Peirce’s writing on social signification. The model posits that humans signify on three contextual levels: content, situation and overall context. The signs are hierarchical. Each sign participates in the sign-vehicle for the sign on the adjacent higher level. The model coheres insightfully with Freud’s topological (unconscious, preconscious, conscious) and structural (id, ego, superego) formulations of involuntary mentation. Since involuntary mentation implies the unfolding of evolved predispositions, the re-articulation of Freud’s paradigm through the nested-sign model proposes a new challenge to evolutionary psychologists. Is nested-sign signification an evolved trait? If so, what does that imply?

GMOs Incorporated: Norms for Developing and Implementing GMOs That Are Founded on a Holistic Perspective

A primary conceptual framework for the consideration and approval of genetically modified organisms (GMOs) is a form of reductionism in which organisms are viewed as being built up of parts that can be manipulated somewhat at will in shaping alternate forms of organisms. In general, such a reductionist view sees few barriers to the manipulation of genes from one organism or species to another. In contrast, those who share a more organismal, holistic conceptual framework, tend to take a more precautionary approach to the development of transgenic organisms. This fundamental divide in the conceptual frameworks of organisms is perhaps the basis for the division in the perspectives on the ethics of the development of GMOs and their implementation in agriculture. This divide possibly correlates with two fundamental approaches to agriculture: a reductionist approach, or a holistic approach. Many would argue that a holistic approach to agriculture is necessary for the development of a sustainable agriculture. Given these fundamental differences in conceptual frameworks, can we possibly formulate some basic principles that might serve as norms for the development of GMOs that might also be consistent with a holistic conceptual framework?

Local Areas Fellowship Luncheon

Sunday, July 25, 2004, 11:30 AM. Find the table with the color place mats of your local area.

Place mat Color	Local Area	Area Conveners	Areas Included
white	Canada/ International	Robert Mann Don McNally	–Canada, China, New Zealand, Norway, South Africa, Switzerland, United Kingdom, West Indies
blue	Chicago, Greater	Marilyne Flora Dorothy Chappell	–Illinois, Iowa, Minnesota, North Dakota, South Dakota and Wisconsin
teal	Indiana/Kentucky/ Michigan/Ohio	Deborah Haarsma George Murphy	–Indiana, Kentucky, Michigan and Ohio
green	Northeast	Jack Haas Jerry McNatt	–Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island and Vermont
pink	Pennsylvania	Jerry Hess Joe Sheldon	–Delaware, Pennsylvania and New Jersey
orange	Rocky Mountain	Ruth Miller Ken Touryan	–Colorado, Kansas, Nebraska, Utah and Wyoming
yellow	Southeast	Martin Price Jay Hollman	–Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri, North Carolina, South Carolina and Tennessee
red	Southwest	Fred Hickernell Margaret Towne	–Arizona, Nevada and New Mexico
purple	Oklahoma/Texas	Ken Dormer Carl Resler	–Oklahoma and Texas
lavender	Washington, DC/ Baltimore	Paul Arveson Roman Miller	–District of Columbia, Maryland, Virginia and West Virginia
silver	West	Stanley Moore Jack Swearngen	–Alaska, California, Hawaii, Idaho, Montana, Oregon and Washington

ASA Business Meeting Agenda

Sunday, July 25, 2004, 7:00–8:00 PM in the auditorium of Northwest Building.

1. Call to order and opening prayer –Martin Price
2. Introduction of Council members –Martin Price
3. Recognition of ASA staff and meeting chairs –Don Munro
 - A. Staff: Carol Aiken, Bob Barnett, and Lyn Berg
 - B. Editors: David Fisher, Roman Miller, Richard Ruble, and Margaret Towne
 - C. Program Chairs: Kenneth Dormer, Hugh Reynolds, and Judy Toronchuk
 - D. Local Arrangements: David Clements
 - E. Web Master: Terry Gray; Web Editor: Jack Haas
4. Nominees for 2005 Council vacancy –Marilyne Flora
5. Secretary/Treasurer Report –Ruth Miller for Hessel Bouma
6. Future meetings –Don Munro
 - A. 2005, August 5–8: Messiah College, Grantham, PA
Program Chair: Kenell Touryan
Local Arrangements Co-Chairs: Ted Davis and Jerry Hess
Topic: Alternative Energy Resources, Conservation and the Environment
 - B. 2006, July 28–31: Calvin College, Grand Rapids, MI
Program Chair: Hessel Bouma III
Topic: Science, Technology, and Ethics
 - C. 2007, August 3–5: Edinburgh, Scotland –Hugh Reynolds
7. Report on Student and Early Career Scientists' Activities –Johnny Lin
8. Introduction of Newly Elected Fellows –Don Munro
9. Recognition of Fifty Years of ASA Membership –Don Munro
10. Remembrances –Don Munro
11. Report to the membership concerning the executive director's position –Martin Price
12. Offering for the ASA
13. Members' questions and comments
14. Closing prayer –Kenell Touryan



Founded in 1941

For Information Contact:

For Immediate Release

Ken Touryan, tourken@aol.com, 303.697.5731
 Ted Davis, tdavis@messiah.edu, 717.766.2511
 Jerry Hess, ghess@messiah.edu, 717.766.2511
 Carol Aiken, carol@asa3.org, 978.356.5656

ASA Plans Its 60th Annual Meeting

IPSWICH, MA: The 2005 ASA Annual meeting will be held August 5–8, at Messiah College, Grantham, PA. The theme of the meeting is: “Alternative Energy Resources, Conservation, and the Environment.”

The program chair is Kenell Touryan from the National Renewable Energy Laboratory of the USDOE, and local arrangements co-chairs are Edward Davis and Gerald Hess from Messiah College.

We have four plenary speakers who are experts in alternative energy technologies, conservation, and the environment: (1) Stan Bull, Ph.D., Associate Director, National Renewable Energy Laboratory (NREL), Golden, CO; (2) George Sverdrup, Ph.D., Manager, USDOE Hydrogen Program at NREL; (3) Robert Wauzzinski, Ph.D., Associate Professor of Philosophy and Religion, Ball State University, author of *Discerning Prometheus: The Cry for Wisdom in our Technological Society* (Rosemont, 2001). Held Lindeman Chair in Philosophy of Technology at Whitworth College, and has published papers in *Perspectives on Science and Christian Faith*; (4) Egbert Schuurman, Ph.D., Professor and Chair, Department of Christian Philosophy, Technological Universities of Delft and Eindhoven, Netherlands, author of numerous books and articles on technology and ethics from a Christian perspective. Schuurman is also a graduate engineer.

The alternative energy resources will include solar energy (solar thermal and solar electric), wind, biomass (bio-gas; biodiesel; ethanol, heat, etc.), geothermal, hydrogen and distributed systems, including hybrid systems (for example, renewable energy with diesel backup) for the developing and underdeveloped world countries. Bull and Sverdrup will be speaking on renewable energy resources/ technologies, conservation and hydrogen, Wauzzinski and Schuurman will speak on the limits of technology and how alternative energy resources, conservation, and environmental care provide a biblical framework for technology.

There will be related sub-themes, such as environmental ethics and climate change. In fact, what is exciting about this Annual meeting, ASA members collectively will be confronting and wrestling with several of the critical issues raised in Ken Touryan’s article, “ASA in the 21st Century: Expanding Our Vision for Serving God, the Church, and Society Through Science and Technology” (*PSCF* 56, no. 2 [2004]: 82–8).

The site of the Annual meeting will be on the Messiah College’s scenic main campus, located on 400 beautiful rolling acres in the suburban town of Grantham, in south central Pennsylvania, a 30-minute drive from the Harrisburg International airport and a 1½-hour drive from Baltimore International airport. Tourist attractions include among many others: the National Civil War Museum, Civil War Gettysburg, Hershey Chocolate World and Amish country.

-30-



Donald W. Munro, Ph.D., Executive Director

phone: 978.356.5656

fax: 978.356.4375

e-mail: asa@asa3.org

www.asa3.org

Notes

Notes

Notes