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# General Information

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## ASA Book Room

A book room featuring books of interest to attendees will be in the George W Truett Theological Seminary (Truett) Great Hall. Hours are as follows:

Friday:	2:00 PM–5:00 PM
Saturday:	8:30 AM–4:00 PM; 7:30–9:00 PM
Sunday:	11:30 AM–3:30 PM
Monday:	8:30 AM–1:30 PM

## Emergency Phone Numbers

Baylor Public Safety:	254.710.2222	(10:00 PM–7:00 AM)
Events Services:	254.710.7808	(7:00 AM–10:00 PM)

## Plenary Sessions

All plenary sessions will be held in Truett 121.

Friday:	7:00 PM	Charlie Duke, “The Race to the Moon”
Saturday:	8:30 AM	Mario Beauregard, “The Neuroscience of Spirituality”
	1:00 PM	Gerald Cleaver, “The Multiverse—Next Step in Our Growing Perception of Reality?”
		Robert Mann, “Believing in Everything?”
Sunday:	10:15 AM	James Tour, “Nanotechnology and Standing as a Christian in the Academy”
	7:00 PM	Perla Manapol, “South to South: Appropriate Technology Transfer for Poverty Alleviation”

## Special Events

Friday:	8:30 AM	Workshop: “Teaching about Science and Christianity” –Truett 107
	8:15 PM	Fellowship Mixer –Truett Great Hall
Saturday:	7:00 AM	Publications Breakfast Meeting –Penland Hall cafeteria
	12:00 PM	Women in Science Luncheon –Penland Hall cafeteria
	5:30 PM	ASA Business Meeting –Truett 121
	6:45 PM	Texas Barbecue –Blume Conference Center, 5th floor followed by Line Dancing –Truett Great Hall
	9:00 PM	Students and Early Career Network Outing
Sunday:	11:45 AM	Students and Early Career Network Luncheon –Penland Hall cafeteria
	11:45 AM	Fellows Luncheon –Penland Hall cafeteria
	8:15 PM	InterVarsity Graduate Faculty Reception –Truett Great Hall

## Check-out

Monday:	2:00 PM	Please leave your completed evaluation form at the ASA registration table. If you are staying in the university dorm, please leave your linens rolled up on your bed.
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## Many thanks to ...

- Program Chair **Walter Bradley** and Local Arrangements Chair **William Jordan**.
- Program Committee: **Walter Bradley, Gerald Cleaver, Edward Davis, Byron Johnson, William Jordan,** and **Matthew Stanford**.
- Line Dancing Instructor **Ann Bradley**.

We are especially thankful for the **donors** who contributed to the Students and Early Career Scientists’ Scholarship Fund.

## The ASA Spirit

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.

# 2009 ASA Annual Meeting Schedule

All sessions will be held in the George W. Truett Theological Seminary (Truett).  
Abstracts for each session are listed on the page numbers in parentheses.

Friday, 31 July 2009	
8:00 AM	Departure from Baylor Visitors Center parking lot ♦ Dinosaur Valley, Paluxy River near Glen Rose (returns 1:30 PM)
8:30 AM	Departure from Baylor Visitors Center parking lot ♦ HOT (Heart of Texas) Renewable Energy Tour (returns 12:30 PM)
8:30 AM–4:30 PM	Workshop: "Teaching about Science and Christianity," <b>Ted Davis</b> and <b>Deborah Haarsma</b> –Truett 107
1:30 PM	Departure from Baylor Visitors Center parking lot ♦ Waco Wetlands, Waco Cameron Park Zoo and Waco Cameron Park (returns 5:00 PM) ♦ Mayborn Museum, Ranger Hall of Fame & Museum, Texas Sports Hall of Fame (returns 5:00 PM)
5:30 PM	Dinner –Penland Hall cafeteria
6:45 PM	Welcome –Truett 121 <b>Walter Bradley</b> , Program Chair <b>Bill Jordan</b> , Local Arrangements Chair
7:00 PM	<b>Plenary Session I.</b> Moderated by Walter Bradley –Truett 121 (6) <b>Charlie Duke</b> , "The Race to the Moon"
8:15 PM	Fellowship Mixer –Truett Great Hall

Saturday, 1 August 2009			
7:00 AM	Breakfast –Penland Hall cafeteria	Publications Breakfast Meeting, <b>Arie Leegwater</b> presiding	
8:00 AM	Devotions, <b>Ken Touryan</b> –Truett 121		
8:30 AM	<b>Plenary Session II.</b> Moderated by Matthew Stanford –Truett 121 (6) <b>Mario Beauregard</b> , "The Neuroscience of Spirituality"		
9:30 AM	Refreshment Break		
Parallel Session I	I-A. Social Sciences Truett 121 (6–8)	I-B. Science and Theology Truett 113 (8–10)	I-C. History of Science Truett 107 (10–11)
10:00 AM	<b>Matthew S. Stanford</b> , "Perceptions and Knowledge of Mental Illness in the Local Church: A Survey of Texas Baptist Pastors"	10:00 AM <b>Paul H. Seely</b> , "Does the Bible Use Phenomenal Language?"	<b>Bethany N. Sollereider</b> , "The Darwin-Gray Exchange"
10:30 AM	<b>Byron R. Johnson</b> , "Religiosity and Delinquency: A Meta Analysis"	10:45 AM <b>Carol A. Hill</b> , "The Worldview Approach to Biblical Interpretation and Origins: What It Is and How It Differs from Accommodation"	<b>Michael N. Keas</b> , "Darwinism, Fundamentalism, and R. A. Torrey: Issues in Science and Christianity from 1889 to 1925"
11:00 AM	<b>Sung Joon Jang</b> , "Why Do Black Youth Use Drugs Less than White Youth?"		
11:30 AM	<b>Wade C. Rowatt</b> , "Associations among Religiousness, Social Attitudes, and Prejudice in a National Random Sample of American Adults"	11:30 AM <b>Denis O. Lamoureux</b> , "The Sin-Death Problem: Toward an Evolutionary Creationist Solution"	<b>Steve A. Badger</b> , "Pentecostal Responses to Evolution: A Historical Overview"

Saturday, 1 August 2009				
12:00 PM	Lunch –Penland Hall cafeteria		Women in Science Luncheon	
1:00 PM	<b>Plenary Session III.</b> –Truett 121 (6) <b>Gerald Cleaver</b> , “The Multiverse—Next Step in Our Growing Perception of Reality?” and <b>Robert Mann</b> , “Believing in Everything?”			
<b>Parallel Session II</b>	<b>II-A. Social Sciences</b> (continued)  Truett 107 (6–8)	<b>II-B. Science and Theology</b> (continued)  Truett 113 (8–10)	<b>Symposium I</b>	<b>Christianity and the Possibility of a Multiverse</b> <b>Gerald Cleaver</b> , Moderator Truett 121 (11–12)
2:00 PM	<b>Elisa Zhai</b> , “Reframing the U.S. Religious Landscape: Assessing the Impact of Asian Americans”	<b>Rodney J. Whitefield</b> , “The Fourth Creative ‘Day’ of Genesis: Answering the Questions about the Sun and the Moon”	2:00 PM	<b>Gerald Cleaver</b> , “The String Multiverse, the Cosmological Anthropic Principle, and Anselm’s Ontological Argument”
2:30 PM	<b>Andrew Whitehead</b> , “God or Greed? The ‘American Dream,’ Religion, and White-Collar Crime”	<b>Ray Williams</b> , “What Kind of Days Are These?”	2:20 PM	<b>Robert Bishop</b> , “The Doctrine of Creation and Cosmology”
3:00 PM	<b>Michael G. Tenneson</b> , “Measuring Pentecostal Attitudes and Beliefs about Origins”	<b>Dick Fischer</b> , “Historical Adam”	3:00 PM	<b>Bruce Gordon</b> , “Multiversal Misgivings: Negating the Naturalistic Universal Possibilism of Multiverse Cosmology”
3:30 PM	Refreshment Break			
<b>Parallel Session III</b>	<b>III-A. Philosophy, Religion, and Science</b> Truett 107 (12–13)	<b>III-B. Science and the Church</b> Truett 113 (13–14)	3:40 PM	Refreshment Break
4:00 PM	<b>John W. Hall</b> , “How to Think about Chance and Purpose”	<b>Fred S. Hickernell</b> , “A Church Course on Science and Faith for Adults”	4:00 PM	<b>Dave Rogstad</b> , “Does the Multiverse Eliminate the Need for God?”
4:30 PM	<b>Don Petcher</b> , “Methodological Naturalism: Necessary for Science or Superfluous?”	<b>John C. Munday</b> , “Elements of the Scientific Method in Scripture”	4:40 PM	<b>Summary Panel Discussion</b> <b>Panelists:</b> Robert Bishop Gerald Cleaver Bruce Gordon Robert Mann Dave Rogstad
5:00 PM	<b>Paul Arveson</b> , “Zero, One, Two, Three: The Dimensions of Religious Thought”	<b>Ken Wolgemuth</b> and <b>Gregory S. Bennett</b> , “Pastors Need to Hear from Christian Geologists”		
5:30 PM	<b>ASA Business Meeting</b> –Truett 121. Everyone is welcome.			
6:45 PM	<b>Texas Barbecue</b> –Blume Conference Center, 5th floor followed by <b>Line Dancing</b> –Truett Great Hall			
9:00 PM	<b>Students and Early Career Network Outing</b>			

Sunday, 2 August 2009			
7:30 AM	Breakfast –Penland Hall cafeteria		
9:15 AM	<b>Worship Service</b> –Truett 121 <b>Michael Abbaté</b> , “Gardening Eden — How Creation Care Will Change Your Faith, Your Life, and Our World”		
10:15 AM	<b>Plenary Session IV.</b> –Truett 121 (6) <b>James Tour</b> , “Nanotechnology and Standing as a Christian in the Academy”		
11:45 AM	Lunch –Penland Hall cafeteria	Students and Early Career Network Luncheon	Fellows Luncheon
<b>Parallel Session IV</b>	<b>IV-A. Environment</b> Truett 113 (14–16)	<b>IV-B. Education</b> Truett 107 (16–17)	<b>Symposium II</b> <b>Origins: Part I</b> Truett 121 (18–20)
1:00 PM	<b>Leslie Wickman</b> , “Cultivating a Personal Christian Environmental Ethic”	<b>Kimberly C. Dawes</b> , “Nature Study for K–12 Education”	1:00 PM <b>Loren Haarsma and Stephen Meyer</b> , “Four Myths about Intelligent Design and Four Myths about Theistic Evolution”
1:30 PM	<b>Craig Rusbult</b> , “Teaching Christian Stewardship using Design Method”	<b>William B. Collier</b> , “Integration of Christian Worldview into Science Teaching: Teaching Philosophy of Science to General Chemistry Lab Students”	
2:00 PM	<b>Keith B. Miller</b> , “Natural History as a Foundation for Creation Stewardship”	<b>Jerry R. Bergman</b> , “A Survey of How the Subject of Origins Is Taught”	
2:30 PM	<b>Lin Allen</b> , “Sonar Training: Stewardship and the Supreme Court”	<b>Ide Trotter</b> , “Science vs. Religion in the Controversy over Texas Science Textbook Standards”	2:30 PM <b>Dennis Venema</b> , “Human Genomics: Vestiges of Eden or Skeletons in the Closet?”
3:00 PM	Refreshment Break	<b>James Peterson</b> , “Better Thinking through Chemistry: A Theological Prescription”	3:15 PM Refreshment Break
<b>Parallel Session V</b>	<b>V-A. Environment</b> (continued) Truett 113 (14–16)	<b>V-B. Science and Technology in Service of the Poor</b> Truett 107 (20–21)	
3:30 PM	<b>Johnny Wei-Bing Lin</b> , “On Eschewing a Policy-Prescriptive Role for Science in Environmental Controversies”	<b>Steven W. Bradley</b> , “The Role of Comparative Advantage, Distributed Agency, and Distributed Knowledge in Sustainable Economic Development”	3:30 PM Two Theological Perspectives <b>C. John Collins</b> , “Were Adam and Eve Historical Figures? Yes, Indeed!” <b>Daniel Harlow</b> , “Adam and Eve as Symbolic Figures in Biblical Literature” and <b>John Schneider</b> , “Genetic Science and Christianity’s Story of Human Origins: An Aesthetic ‘Supra-Lapsarianism’”
4:00 PM	<b>Jay Hollman</b> , “The Ethics of Meat Consumption”	<b>Brian Thomas</b> , “Microhydro-Generation of Electricity: Providing Physical and Spiritual Light in Honduras”	
4:30 PM	<b>Steven G. Hall</b> , “Use of Bio-engineered Artificial Reefs for Ecological Restoration and Carbon Sequestration”	<b>Walter L. Bradley</b> , “Serving the Poor by Making Better Cook Stoves”	
5:00 PM	<b>Sean M. Cordry</b> , “The Spilling Quiver: Sunshine, the Commons, and the Temple of the Lord”	<b>Stanton Greer</b> , “Coconut Composites: New Products to Bless Poor Coconut Farmers”	
5:45 PM	Dinner –Penland Hall cafeteria		
7:00 PM	<b>Plenary Session V.</b> –Truett 121 (6) <b>Perla Manopol</b> , “South to South: Appropriate Technology Transfer for Poverty Alleviation”		
8:15 PM	Reception for InterVarsity Graduate Faculty hosted by <b>Terry Morrison</b> –Truett Great Hall		

Monday, 3 August 2009					
7:00 AM	Breakfast –Penland Hall cafeteria				
8:00 AM	Devotions, <b>Rod Scott</b> –Truett 121				
<b>Parallel Session VI</b>	<b>VI-A. Christian Perspectives on the Soul</b> Truett 107 (22)	<b>VI-B. Science and Technology in Service of the Poor</b> (continued) Truett 113 (20–21)		<b>Symposium II</b> (continued)	<b>Origins: Part II</b> Truett 121 (18–20)
8:30 AM	<b>Edward B. Davis</b> , “Evolution and the Image of God: Historical Reflections on Science, Morality, and Human Nature”	8:30 AM	<b>Dominic M. Halsmer</b> , “Worldview by Affordance-Based Reverse Engineering of Complex Natural Systems”	8:30 AM	<b>Robert Kaita</b> , “Personal Computer Application Programs as Tools for Conceptualizing Aspects of Evolutionary Theory”
9:15 AM	<b>Sara Joan Miles</b> , “Body and Soul: Biological Theories of Generation and Theological Theories of Ensoulment”	9:00 AM	<b>William M. Jordan</b> , “A Christian Approach to the Ethics of International Development Projects”	9:00 AM	<b>Richard Sternberg</b> , “The Generation of Essential RNA Messages from Pseudogene Transcripts by Exemplar Causation”
		<b>VI-C. Miscellaneous</b> Truett 113 (22–23)		9:45 AM	
		9:30 AM	<b>Kenell J. Touryan</b> , “Science and Faith Issues in Islam: Is There an Avenue of Rapprochement between ASAers and Practicing Muslim Scientists?”		<b>Douglas Axe</b> , “The Information Required for Metabolic Innovation, and Why the Darwinian Mechanism Is Not Apt to Be Its Source”
10:00 AM	<b>Rodney J. Scott</b> , “Relating Body and Soul: A Collision between Theology, Science, and Good Intentions”	10:00 AM	<b>Harry Lee Poe</b> , “Edgar Allan Poe’s Big Bang Theory and the Power of Imagination”		
10:30 AM	Refreshment Break	10:30 AM	Refreshment Break	10:30 AM	Refreshment Break
<b>Parallel Session VII</b>	<b>VII-A. Astronomy</b> Truett 113 (23–24)	<b>VII-B. Science and Theology</b> (continued) Truett 107 (8–10)			
11:00 AM	<b>Joseph L. Spradley</b> , “Importance of the Moon for Life on Earth”	<b>Janel M. Curry</b> , “God and Nature: An Analysis of Post Katrina and Asian Tsunami Sermons”		11:00 AM	<b>Robert J. Marks II</b> and <b>William A. Dembski</b> , “Evolutionary Informatics: Measuring the Cost of Success”
11:30 AM	<b>Rollin A. King</b> , “Chemistry in Counterfactual Universes”	<b>William A. Dembski</b> , “The Retroactive Effects of the Fall”		11:30 AM	<b>David Campbell</b> , “The Origin of Higher Taxa”
12:00 PM	<b>Richard G. McClure</b> , “The Star of Bethlehem: How a Near-Earth Asteroid Explains the Magi’s Star”			12:00 PM	<b>David Snoke</b> , “Is It Wrong to Quantify Wonder?”
12:45 PM	Lunch –Penland Hall cafeteria				
8:00 AM–2:00 PM	Check-out. Please leave your completed evaluation form at the ASA registration table. If you are staying in the university dorm, please leave your linens rolled up on your bed.				

# Abstracts

## PLENARY SESSIONS

Friday 7:00 PM

### The Race to the Moon Charlie Duke

Astronaut Duke will refresh us about the space race of the 1960s with an emphasis on Apollo and its history. He will relate his personal experiences. Of the nine flights to the moon, Astronaut Duke was involved with five of these missions.

Saturday 8:30 AM

### The Neuroscience of Spirituality Mario Beauregard

During his lecture, Dr. Beauregard will review clinical data about patients with epilepsy suggesting a role for the temporal lobe and the limbic system in religious, spiritual, and mystical experiences (RSMEs). The possibility of experimentally inducing such experiences by stimulating the temporal lobe with weak electromagnetic currents will be examined. The findings of brain imaging studies of RSMEs carried out during the last decade will also be reviewed. Last, these findings and the phenomenology of RSMEs in regard to the mind-brain problem will be discussed.

Saturday 1:00 PM

### The Multiverse—Next Step in Our Growing Perception of Reality? Gerald Cleaver

I review the 20-year history of modern string/M theory that has led to the current theorized string landscape and its proposed realization in a multiverse of at least  $10^{500}$  causally independent universes. I will then consider the concept of multiverse as it naturally fits as the next possible step in humankind's understanding of reality (which is reaching this stage after chronologically passing through the three-tiered model, the geocentric, heliocentric, and galactocentric paradigms, and the

current univentric era). The properties of a string/M-theory multiverse will be summarized. The ekpyrotic model will be discussed as an example.

Saturday 1:00 PM

### Believing in Everything? Robert B Mann

One of the most intriguing scientific meta-lessons of the last fifty years is that our universe is uncommon: out of all possible universes one might conceive, ours has specialized features that make it suitable for life. In recent years, both theology and science have been trying to come to grips with the relevance and significance of this finding. Is it the Creator's thumbprint? Is it indicative of a particular unified theory? Or is it an inevitable consequence of our universe being a small part of a multiverse, a much larger structure in which every admissible possibility is actually realized? This last idea, growing in popularity amongst scientists, raises questions about issues that are at the very core of both science and theology.

After a brief review of the multiverse paradigm, I shall discuss the implications this idea has for both science and Christian theology. I will then address the motivational issues that underlie the multiverse, issues that lie at the heart of theological thinking and scientific practice. I shall close with the challenges that the multiverse paradigm presents for followers of Jesus exploring God's world of endless wonder. Emile Cammaert wrote that the first effect of not believing in God is to believe in anything. Is science now compelling us to believe in everything?

Sunday 10:15 AM

### Nanotechnology and Standing as a Christian in the Academy James Tour

An overview of nanotechnology as performed in the presenter's laboratory will be given. This will cover topics such as carbon nanotubes- and

graphene-materials and electronics, and nanocars. Then several stories will be told from two decades of teaching in both public and private universities. These will be presented to serve as an encouragement to those Christians who are working in secular universities and companies.

Sunday 7:00 PM

### South to South: Appropriate Technology Transfer for Poverty Alleviation Perla L Manapol

Why, and how, technology transfer for poverty alleviation should be patterned after the "South to South" concept, based on "lessons learned." What works in the developed world does not necessarily work in the developing world.

## SOCIAL SCIENCES

Saturday 10:00 AM

### Perceptions and Knowledge of Mental Illness in the Local Church: A Survey of Texas Baptist Pastors Matthew S Stanford and David Philpott

Historically, psychologists have tended to view clergy as mental health "gatekeepers." In this role, clergy are thought to function as a referral source for psychologists who then provide direct mental health services to the client. Due in part to limited training in the recognition of serious mental illness and/or misguided beliefs about the origin of these disorders, this process appears to be inefficient at best.

Previous research with individuals diagnosed with mental illness who have sought assistance from the church in relation to their disorder suggests that individuals in the local church, particularly conservative and charismatic congregations, are denying or dismissing a high percentage of mental disorder diagnoses. When a church denies the existence of an individual's

mental disorder, the clients are then more likely to be told that the cause of their psychological problem is solely spiritual in nature.

To better understand this phenomenon the present study reports data from a survey of Texas Baptist pastors' perceptions and knowledge of mental illness. Analysis of the data shows that Baptist pastors will, in general, endorse both organic and psychological treatment models (e.g., cognitive behavioral, humanistic) for mental health problems when these models are congruent with their theological belief system. However, when participants were asked to rate the contribution of various factors (e.g., chemical imbalances, spiritual poverty) to specific mental disorders, there was significant variation between what would be considered more severe psychopathology (e.g., schizophrenia) and disorders such as depression and anxiety disorders. More severe psychopathology was thought to be predominately the result of organic factors while depression and anxiety disorders were thought to result from a combination of both organic and spiritual factors.

The implications of these results for increasing collaboration between the Christian and mental health communities will be discussed.

**Saturday** **10:30 AM**

### **Religiosity and Delinquency: A Meta Analysis**

**Byron R Johnson, Elizabeth Kelly,  
and Sung Joon Jang**

The influence of religion on delinquency has been debated for more than 40 years, and yet there remains a lack of consensus about the nature of this relationship. In an effort to bring objective clarity to this area, the current study assesses the religion-delinquency literature by utilizing a meta-analysis — a methodological approach that makes it possible to review in a systematic and summary fashion, a specific body of research.

The current meta-analysis uncovered 255 journal articles published between 1944 and 2008. Each of these studies specifically examined the role of religion within the context of studying

delinquency. We find the research literature is not disparate or inconclusive as previous studies have suggested. Religious measures are generally inversely related to deviance, and this is especially true among the most rigorous studies.

As social scientists continue to examine the neglected topic of religion, this paper is a reminder that measurement issues around a complex topic like religion are extremely important. The findings further indicate that future research on delinquency and crime may gain explanatory power as scholars consider incorporating religious variables into relevant theoretical models.

**Saturday** **11:00 AM**

### **Why Do Black Youth Use Drugs Less than White Youth?**

**Sung Joon Jang and Byron R Johnson**

While previous studies find that black youth engage in drug use less than white youth, explanations of black-white differences are generally not considered from a developmental perspective. To address this issue, we employ nationally representative data spanning childhood through young adulthood. Specifically, we hypothesize that black youth tend to use drugs, licit and illicit, less than white youth during adolescence and young adulthood. We also hypothesize that the race differences in drug use are expected partly because black youth are less likely to be raised by parents who smoke, drink, and/or use illicit drugs; less likely to have drug-using friends; more likely to grow up within an evangelical Protestant religion; and more likely to be religiously involved than white youth.

We first test these hypotheses contemporaneously by estimating a series of regression models, using latent-variable structural equation modeling (SEM) as well as ordinary least squares. We also test these hypotheses longitudinally by applying SEM to estimate a three-wave panel model. Results support the first hypothesis, and show that the race differences in drug use during young adulthood are due partly to black-white differentials in exposure to

parent and peer drug users, religious upbringing, and religiosity.

**Saturday** **11:30 AM**

### **Associations among Religiosity, Social Attitudes, and Prejudice in a National Random Sample of American Adults**

**Wade C Rowatt**

Psychologists have devoted considerable theoretical and empirical attention to the scientific study of social attitudes and prejudice. Most of these studies were conducted with relatively small, nonrepresentative samples of college students.

In this study, we analyzed self-report data from a random probability sample with over 1,500 American adults. Participants answered questions about their religiosity, right-wing authoritarianism, political ideology, demographic characteristics, and attitudes toward persons in historically disadvantaged social groups (i.e., ethnic minorities, homosexual individuals).

In support of the selective intolerance hypothesis, general religiousness was associated with less-accepting attitudes toward homosexuals and negligibly with general racial prejudice. These associations remained when controlling for some other known individual differences in prejudice.

We tentatively conclude that general religiousness is not associated with universal acceptance of others. Rather, general religiousness appears to be linked with selective self-reported intolerance toward persons perceived to behave in a manner inconsistent with some traditional religious teachings.

**Saturday** **2:00 PM**

### **Reframing the US Religious Landscape: Assessing the Impact of Asian Americans**

**Elisa Zhai**

The American religious landscape has become more diverse during the past half century. The dramatic increase of nonwhite new immigrants continues to challenge the outlook of American religion. However, little empirical research has examined to what extent

the rising population of Asian immigrants helps to shape American religious secularization or diversification.

Utilizing data from multiple national surveys over the last two decades, we find significant movement in terms of religious affiliation among Asian Americans. These surveys consistently document that a majority of Asian immigrants in the US are Christian. Further, from a religious market perspective, Protestant Asian immigrants tend to be more successful in passing along their religion to future generations as compared with Asian Catholics or Buddhists.

Implications of Asian immigrants on influencing American Protestantism and the issues regarding "other" non-Christian Asian Americans are discussed.

Saturday 2:30 PM

**God or Greed?  
The "American Dream," Religion,  
and White-Collar Crime**  
Andrew Whitehead

Why seemingly successful individuals commit white-collar crimes has puzzled researchers ever since Edwin Sutherland categorized this type of criminal activity in 1939. Current scholarship points to fear of economic loss or low self-control as important variables to consider.

Recently, Institutional Anomie Theory (IAT) was applied to this question. Moderate support for the theory predicting white-collar crime was found (Shoepfer and Piquero, 2006). Religion was noticeably absent from the societal institutions described in the IAT study. Is religion, as an institution, significantly associated with the prevalence of white-collar crime? It is this question the present study hopes to answer.

In a state-level analysis of white-collar crime, religion does not have an effect on white-collar crime rates. Reasons for this finding as well as possibilities to further explore this relationship are also discussed.

Saturday 3:00 PM

**Measuring Pentecostal Attitudes  
and Beliefs about Origins**  
Michael G Tenneson and Steve A Badger

The authors report on origins surveys taken by a large number of Pentecostal students and educators. The reliability, content validity, and construct validity of the surveys were determined to be high. Response analyses supported the grouping of respondent positions on origins into three theistic categories: young earth creation, old earth creation, and evolutionary creation.

Responses of survey takers were often inconsistent with their stated positions, indicating that we need to improve our teaching of origins. The results of the survey also indicate that Pentecostal educators hold diverse opinions on the age of the universe and on macro-evolution. Consequently, a Christian's position on creation-evolution should not serve as the litmus test for orthodoxy.

These surveys have been used by several teachers to examine the breadth and depth of the knowledge and opinions of their students regarding origins and as a pre-post evaluation of instructional effectiveness. Teachers of science, theology, or Bible courses should find the survey and other resources presented here useful. They can help teachers to present various theistic perspectives on origins in a way that reinforces students' faith in the Creator and the trustworthiness of the Bible while instilling confidence in the merits of the methods of the natural sciences. This paper supplements "Pentecostal Responses to Macroevolution: A Historical Overview," another paper by the authors.

**SCIENCE AND THEOLOGY**

Saturday 10:00 AM

**Does the Bible Use  
Phenomenal Language?**  
Paul H Seely

From the time of Calvin to the present the claim has been made that some statements in the Bible, which if taken literally would be scientific errors, are

really just phenomenal language. What is the definition of phenomenal language?

What is the "historical-grammatical" interpretation of Scripture, and why is it important? Does Genesis 1 speak of a solid sky, or is that just phenomenal language? What does the historical context of the Old and New Testaments tell us about this question, and what does the biblical text tell us?

Are the biblical statements that the sun is rising and setting just phenomenal language? Did the writers of the Bible mean the same thing that we do when we say the sun is rising and setting? What does the historical context of the Old and New Testaments tell us? What does the biblical context tell us, and what is the surprising thing the Hebrew text tells us that is rarely ever mentioned? Must the Bible use phenomenal language in order to be inerrant?

Saturday 10:45 AM

**The Worldview Approach to  
Biblical Interpretation and Origins:  
What It Is and How It Differs  
from Accommodation**  
Carol A Hill

The Worldview Approach is a new way of interpreting Scripture in the Science-Origins debate. It is similar to "Accommodation" – used in the specific sense of Seely and Lamoureux – in that it incorporates the pre-ingrained scientific and historical ideas of the biblical authors into the text. However, it differs from "Accommodation" in that it maintains that God does not accommodate untruths; rather, he enters into the time line of human history to give his revelation to the biblical authors who then accommodate it according to their own worldview.

The Worldview Approach also differs from "Accommodation" in that it maintains that Adam and Eve, Noah, and the patriarchs were historical people and that the Garden of Eden and the Flood were historical events. In the matter of Origins, Adam was not the first human to have lived; however, he was the first human to directly interact with God and the first to be made a living soul (spirit).

The Worldview Approach also maintains that the Old Testament is concerned with *only* the genealogical line of Adam to Christ, not with the line of pre-Adamite humans. Therefore, while Adam and Eve cannot be considered to be the parents of the whole human race, it is theologically important that Adam be a historical person through whom sin was conferred on humanity, just as a historical Christ (the “second Adam”) conferred grace on humanity and the forgiveness of sins.

**Saturday** **11:30 AM**

### **The Sin-Death Problem: Toward an Evolutionary Creationist Solution** Denis O Lamoureux

The greatest challenge for Christians who embrace evolution is to explain biblical passages that refer to a connection between the sin of Adam and the origin of physical death. Genesis 3 indicates that death entered the world because God condemned Adam to die in judgment for his sin; Paul in Romans 5 and 1 Corinthians 15 understood the fall of the first man and his consequent death to be literal history; and the church throughout time has firmly upheld that these events are historical. However, the geological record reveals overwhelming evidence that death existed for hundreds of millions of years before the appearance of humans. The most common solution to this conflict between Scripture and science is to propose that physical death did not enter the world with Adam, but rather spiritual death.

Evolutionary creation is a distinctly Christian approach to evolution. It asserts that the God of the Bible created the universe and life through evolution—an ordained, sustained, and design-reflecting natural process. This view of origins challenges the popular assumption that the Creator revealed scientific facts in the opening chapters of Scripture thousands of years before their discovery by modern science.

Evolutionary creation contends that, in the same way, the Lord meets us wherever we happen to be in our lives, the Holy Spirit came down to the level of the inspired biblical writers and used their ancient understanding of origins in order to disclose inerrant,

life-changing Messages of Faith. In this way, the origin of life, including human life, in the early chapters of Genesis is cast in ancient scientific categories.

Consistency argues that this is also the case with the origin of death. The apostle Paul and his readers accepted this ancient view of origins, and the Holy Spirit accommodated and used it as a vessel to reveal that (1) humans are sinful, (2) God judges humans for their sins, and (3) Jesus died for sinful humans, rose physically from the dead, and offers the hope of eternal life.

**Saturday** **2:00 PM**

### **The Fourth Creative “Day” of Genesis: Answering the Questions about the Sun and the Moon** Rodney J Whitefield

Those opposed to the Bible often point to an apparent conflict between the known natural history of the universe and the “making” of the sun, moon, and stars in the fourth creative “day” of Genesis. The objection requires the Hebrew word *asah* (translated making) to be fully equivalent to the Hebrew word *bara* used in Gen. 1:1. Opponents pursue this objection, even though the King James version indicates (in the margin note for Gen. 2:3) that the writer of Genesis did not consider *asah* and *bara* equivalent. The Hebrew of Gen. 2:3 and its significance for the ongoing controversy about the age of the earth will be explained.

A number of commentators have rendered the *asah* in Gen. 1:16 as “had made.” “Had made” is a correct translation for the *asah* used in Gen. 1:16 and provides a second reason that Gen. 1:16 does not indicate the creation of the sun and moon in the fourth creative “day.” An explanation for the correctness of the translation “had made” will be given based upon known patterns of “temporal overlay” in biblical Hebrew expression. The significance of both of the above factors for countering the continuing claims of irreconcilable conflict between physical science and the Bible will be discussed.

**Saturday** **2:30 PM**

### **What Kind of Days Are These?** Ray Williams

For many, the question concerning the antiquity of the earth is a settled issue. However, there are a significant number of Christians, constituting a large part of the church, that are not convinced of this truth. The linchpin of their belief is that they are convinced the Bible teaches that the world was created in six 24-hour days. Therefore, any scientific evidence that does not support their young-earth position is summarily rejected.

As a strategy of addressing this situation, a re-examination of Genesis 1 was undertaken and a fresh interpretation developed. It was based on the principle that there is only one true interpretation of Scripture and that a correct view of the creation narrative will not be in conflict with conclusions made from credible investigations of the natural world. A review of the basic tenets of six historic viewpoints (Ordinary-Day, Gap Theory, Intermittent-Day, Day-Age, Analogical-Day, and Framework view) reveals that each of them is defective for one or more reasons.

Thus, extending the writings of respected scientific and theological scholars, a unique composite viewpoint is presented that captures the subtle but significant teaching concerning the reality and nature of the creation days. This new viewpoint, referred to as the Divine-Pattern view, interprets Genesis 1 in a straightforward manner acknowledging the prescribed living pattern for humankind while avoiding any inference concerning the duration of creation. Consequently, the Divine-Pattern view can serve as a consensus interpretation especially for those who recognize the validity of scientific evidence and are desirous of upholding the harmony of both books of God’s revelation.

**Saturday** **3:00 PM**

### **Historical Adam** Dick Fischer

Human beings are related by common ancestry that extends back in time beyond 100,000 years and points to Africa, according to anthropologists.

If Genesis presents the surrounding cultural environment in the beginning chapters accurately, and weight is given to archaeological findings uncovered during the last 160 years in the Near East, Adam's niche in time and space is no earlier than 7,000 years ago in Southern Mesopotamia, present-day Iraq. Thus the conundrum, how could Adam be the progenitor of human-kind?

The purpose of this paper is to demonstrate with archaeological and biblical data and evidence that Adam's historical niche places him in the flow of humanity rather than at the apex. If Adam was a real life, flesh-and-blood personality living in the Neolithic Period whose mission was to usher in an era of accountability, a natural question would be, when and where did he live?

The biblical text tells us, and recent findings in archaeology support the conclusion, that he lived in the fifth millennium BC near the junction of the Tigris and Euphrates. According to Babylonian tradition, he dwelled in the ancient fishing village of Eridu, the Sumerian "sacred city," now called Abu-Shahreïn.

A legendary figure described in Akkadian texts corresponds to Adam in many respects. Adapa, or Adamu, was described in various Semitic languages scattered throughout the Near East. Described as "blameless," "clean of hands," "anointer," and "observer of laws," Adapa/Adamu was a priest and seer, a profoundly wise man, who lived at Eridu on the Persian Gulf. The name "Adamu" in Akkadian was perpetuated among Semitic generations over three thousand years in memory of their legendary forefather.

Research for the presentation was conducted at the Library of Congress and the primary source is the book, *Historical Genesis from Adam to Abraham*, authored by the presenter ([www.historicalgenesis.com](http://www.historicalgenesis.com)).

Monday

11:00 AM

### God and Nature: An Analysis of Post Katrina and Asian Tsunami Sermons Janel M Curry

Sermons from worship services following both the Asian Tsunami and Hurricane Katrina were analyzed to see how the relationship among God, nature, and humans was understood and depicted. The study included sets of sermons from Catholic, Reformed or Presbyterian, Methodist, and Baptist congregations, and was constructed to complement a larger study of the same denominations. Textual analysis of the sermons was carried out.

The primary goal was to illuminate the range of worldviews relative to nature and God through these events, and look for the theological, ethnic, and class factors that might explain the range of responses. The questions shaping the analysis include the following: (1) Is nature seen as evil, as the instrument of justice that is used by God, or as a neutral force? (2) Does the text reflect an external locus of control where nature is outside our control and such tragedies are a matter of "luck" or "God's will" or is an internal locus of control expressed where the hazard and response are both the result of human actions that are within our control? (3) How do understandings related to structures of class and race arise in the context of the sermons, particularly as expressed in levels of identification with those affected by the tragedy? and (4) What is the level of understanding related to the workings of nature and their relationship to the making of a natural disaster?

Saturday

11:30 AM

### The Retroactive Effects of the Fall William A Dembski

A longstanding assumption in Christian theology is that human sin must precede any appearance of evil in the world for which it is responsible. That may seem axiomatic, but it can legitimately be questioned. Why, in the economy of a world whose Creator is omnipotent, omniscient, and transtemporal, should causes always precede effects? Clearly, such a Creator could act to anticipate events that have

yet to happen. Moreover, those events could be the occasion (or "cause") of God's prior anticipatory action. To tacitly reject such backward causation is to insist that the corrupting effects of the Fall be understood *proactively* (in other words, the consequences of the Fall only act forward into the future).

By contrast, I argue that we should understand the corrupting effects of the Fall also *retroactively* (in other words, the consequences of the Fall can also act backward into the past). In consequence, the Fall could take place *after* the natural evils for which it is responsible. Such "retroactivity" has theological precedent. Take the saving effects of the Cross, which are held to act not only forward in time but also backward. Christians have always attributed the salvation of Old Testament saints to Christ's sacrifice on the Cross at the hands of the Romans even though Old Testament times predate Roman times by hundreds of years. Accordingly, an omnipotent God unbound by time makes a future event (Christ's sacrifice) the cause of an earlier event (the salvation of Old Testament saints). Likewise, an omnipotent God unbound by time can make natural evil predate the Fall and yet make the Fall the reason for natural evil.

## HISTORY OF SCIENCE

Saturday

10:00 AM

### The Darwin-Gray Exchange Bethany N Sollereider

This paper will look at the personal correspondence between the Harvard botanist Asa Gray and the famed naturalist Charles Darwin between 1860-1863 with an intention to investigate Darwin's views on design in nature.

Design was one of the main topics of exchange throughout this three-year period since Gray had written on the subject extensively in three essays he composed in response to the publication of *Origins of Species*. Darwin continued to reread Gray's papers and constantly peppered Gray with questions about the issue.

Ultimately, Darwin failed to see design in nature because of the deeply embedded remnants of William Paley's categories of how divine thought is communicated through the natural world. Darwin first encountered Paley during his years at Cambridge, and the books *Natural Theology* and *Evidences for Christianity* were a large part of his education. In his autobiography, Darwin claims, "I am convinced that I could have written out the whole of the *Evidences* with perfect correctness."

As a result of Paley's influence, Darwin continued to look for examples of perfect adaptation and beneficence in the natural world. When he found multiple counterexamples, such as the famed Ichneumonidae, it overwhelmed his capacity to understand the beauty, complexity, and functionality that he observed around him as the marks of an intelligent designer. This led to Darwin's ultimate rejection of design and eventually of theism.

Saturday 10:45 AM

### Darwinism, Fundamentalism, and R. A. Torrey: Issues in Science and Christianity from 1889 to 1925

Michael N Keas

The leading world evangelist of the turn of the century, R. A. Torrey (1856–1928), played a prominent role in the birth of fundamentalism. He also offered insightful approaches to dealing with Darwinism and naturalism that might inspire a better relationship between science and Christianity today.

In 1889 two important evangelical projects were initiated: Torrey began creating a model Bible curriculum for ordinary Christian workers as the superintendent of D. L. Moody's new Bible Institute in Chicago (which Torrey later adapted for the Bible Institute of Los Angeles), and the Scottish theologian James Orr began writing his Kerr lectures that embodied the first explicit articulation of Christianity as a "worldview."

These two projects mutually reinforced each other and became part of the larger fundamentalist movement to defend Christianity against modernism, as argued in *The Fundamentals* (1910–1915). The writers of *The Fundamentals*,

including Orr and Torrey, proposed harmony between science and Christianity by accepting the standard geological ages and by offering at least some critique of Darwinism. The Bible Institute of Los Angeles (Biola) advanced the work of *The Fundamentals* though its monthly periodical, *The King's Business*, which Torrey designated as the successor to *The Fundamentals* in the final volume of that series.

Although Torrey offered an occasional critique of Darwinism in *The King's Business* and in his books and sermons, he urged evangelicals and fundamentalists to focus more on biblical inerrancy and a critique of naturalism in all academic fields, rather than on God's precise method of creation. There is much to be emulated from early fundamentalism before it flung itself into the humiliation of the 1925 Scopes trial—a disastrous move that Torrey did not support.

Studying the history of science and religion can improve our understanding of how science and religion *have* related and how they *should* relate.

Saturday 11:30 AM

### Pentecostal Responses to Evolution: A Historical Overview

Steve A Badger and Michael G Tenneson

This paper presents a historical overview of reactions of Pentecostal Christians to the theories of biological evolution from the founding of the oldest and largest Pentecostal bodies in the early 1900s to the present day. The authors write as insiders: both are scientists with earned PhD's and are ordained Assemblies of God ministers, the largest Pentecostal fellowship.

A succinct overview of the Pentecostal literature from the 1920s through today is followed by an examination of the literature and the official positions of four Pentecostal groups: the Church of God (Cleveland), the Assemblies of God, the Church of God of Prophecy, and the Foursquare Church. Several works by Pentecostal scholars (scientists, theologians, and philosophers) are discussed.

The authors attempt to address these and other questions:

- Why did most Pentecostals almost unanimously condemn biological evolution through the twentieth century?
- How do the official positions of the larger Pentecostal groups compare?
- How did Pentecostal positions change during the last half of the twentieth century?
- How did the changing Pentecostal demographic affect their perspective on origins?
- What developments in the natural sciences provoked these changes? When did Pentecostal scholars join the conversation?

This paper introduces and augments another paper by the authors entitled "Measuring Pentecostal Attitudes and Beliefs about Origins."

### CHRISTIANITY AND THE POSSIBILITY OF A MULTIVERSE

Saturday 2:00 PM

### The String Multiverse, the Cosmological Anthropic Principle, and Anselm's Ontological Argument

Gerald Cleaver

I analyze the string landscape/multiverse picture with regard to the anthropic principle and fine tuning. Then I will discuss how Anselm's ontological argument suggests the string landscape/multiverse picture is not just consistent with Christian theology, but that a creation of (at least) the magnitude and vastness implied by the string landscape/multiverse picture is what should, in fact, be expected in Christian theology.

Saturday 2:20 PM

### The Doctrine of Creation and Cosmology

Robert Bishop

The doctrine of creation offers resources for thinking about cosmology that are often under appreciated. After briefly surveying some elements of the doctrine of creation, I'll raise questions for how the doctrine might help us think about big-bang and multiverse cosmologies.

Saturday 3:00 PM

**Multiversal Misgivings: Negating the Naturalistic Universal Possibilism of Multiverse Cosmology**

Bruce Gordon

Could God make more than one universe if he wanted? Of course, but this isn't really the issue. The purpose of the highly speculative mathematicized metaphysics of quantum cosmology and the inflationary string landscape hypothesis is to provide a thoroughly *naturalistic* explanation for cosmological origins and fine-tuning. Not surprisingly, the proposed explanation is both incomplete and deficient on multiple levels. After briefly documenting the naturalistic motivations that catalyze multiverse theorizing, the technical, empirical and philosophical shortcomings of these efforts will be analyzed, leading to the conclusion that the multiverse hypothesis is epistemically unwarranted and irredeemably deficient from a metaphysical standpoint; furthermore, the universal possibilism it entails is completely destructive of scientific rationality. A brief argument for intelligent design as the most parsimonious and only causally sufficient explanation of cosmological origins and fine-tuning will then be offered, thereby justifying its acceptance as the best explanation we have for why an extraordinarily fine-tuned universe exists rather than nothing at all.

Saturday 4:00 PM

**Does the Multiverse Eliminate the Need for God?**

Dave Rogstad and Hugh Ross

Many nontheists believe that positing an infinite number of universes in which every conceivable set of laws of physics is manifested, moreover where every conceivable value for each of the possible constants of physics is represented, and furthermore where every conceivable measure for each of the gross features of the universe(s) is present removes any need for a supernatural Creator to explain the universe's design features. There are at least seven rebuttals to this claim: (1) The timing of the speculations are far from coincidental. (2) The simple

multiverse model is a Christian doctrine. (3) Nontheistic multiverse speculations do not avoid a transcendent causal Agent. (4) Deistic multiverse models explain too much. (5) Design is seen on all observable-size scales and its discovery is limited only by technology. (6) Multiverse speculations commit a form of the gambler's fallacy. (7) Nontheistic multiverse speculations are testable.

**PHILOSOPHY, RELIGION, AND SCIENCE**

Saturday 4:00 PM

**How to Think about Chance and Purpose**

John W Hall

Both in popular understanding and among philosophers and scientists, chance is associated with a lack of purpose. Consequently, the presence of chance or stochasticity in some physical and biological processes has led to the inference that the universe can have no purpose. This belief is particularly strong among some interpreters of the Darwinian account of biological evolution. In contrast, we ourselves construct systems with stochastic features for our own uses. To account for this contradiction, we will investigate several such systems. In each, the outcome of the stochastic process is not unique but is restricted to a set of possibilities.

Two kinds of purposes can be distinguished. Global purposes are achieved by any possible outcome. For such a purpose, the outcomes may be described as "purpose-equivalent." Local purposes are met by only a subset of the outcomes. Local purposes can be frustrated rather than being achieved.

To apply these insights to created systems we must ask what God's purpose was in creating the universe. This is not answered directly in Scripture but can be inferred from it. After a thorough investigation, the eighteenth-century theologian Jonathan Edwards concluded that God made it for his own glory. Edwards' conclusion is independent of modern accounts of biology.

Stochastic processes provide biology with its dynamic character. This reflects the glory of God in three ways. First is in its richness. There have been more species over biological history than our planet could accommodate simultaneously. Second is in its harmony. Gradual changes in the physical environment are tracked by biological ones allowing life to remain well adapted. Third is in its persistence. Even during times of catastrophic change some species have survived to replenish the earth.

Saturday 4:30 PM

**Methodological Naturalism: Necessary for Science or Superfluous?**

Don Petcher

Philosophers of science or even scientists themselves often insist that methodological naturalism is a necessary component of science. Yet when scientists actually sit down at the lab bench they do not think to themselves, "I must remember to practice methodological naturalism today." Rather, they would probably be thinking something along the lines of how the last time they ran their experiment there was this and that problem, so they need to be careful to do thus and so this time to guard against those kinds of issues, and so on. Indeed, rather than as a help to scientists, the motivation to invoke methodological naturalism seems more often to be to keep the "supernatural" out, which makes it into a kind of demarcation criterion for science.

While keeping out the "supernatural" may be well meaning, philosophers have long argued whether a demarcation line could be drawn in principle, resulting in the general consensus that such a line does not exist. Further, the notion of keeping out the "supernatural" from science depends on the definition of supernatural which in turn depends on how one views God's activity in the world. Whatever the terms are taken to mean, the notion of a natural/supernatural distinction can hardly be taken as an obvious background principle for attempting to place a fence around science.

In this talk, I will revisit the topic of methodological naturalism in view of

the demarcation problem and the notion of the natural/supernatural distinction, and argue that methodological naturalism is not such a clearly defined notion and therefore it is neither necessary nor helpful as a de facto criterion for doing science. But that doesn't matter: science can stand on its own; it does not need methodological naturalism to come to its defense.

**Saturday** **5:00 PM**

### **Zero, One, Two, Three: The Dimensions of Religious Thought**

**Paul Arveson**

This talk describes a simple way to organize the core structure of religions of the world – dimensional logic or dilogic. Major religions (and philosophies) can be organized according to their logical structure, as either zero, one, two, or three-dimensional. This model may be a helpful way to sort out and clarify different world views.

Christian theological thought is found to be two-dimensional and three-dimensional in this scheme, which allows major themes of theology to be synthesized into a small number of basic structures. The resulting structures encourage moderation and balance, and discourage extreme views such as monism and dualism. Dilogic provides (at the risk of oversimplification) a useful teaching aid, by showing the balance in the logical structure of Christian theological doctrines. For example, it shows why the doctrine of the Trinity is not absurd; rather it is rational and even necessary.

Many examples of the dilogical method in philosophy, science, and theology will be shown, to indicate how to analyze any argument dilogically to arrive at a peaceful resolution, if that is logically possible. Dilogic also has an apologetic function in showing the beautiful relationships between ideas in orthodox Christian theology. This talk is offered in memory of Jim Neidhardt.

## **SCIENCE AND THE CHURCH**

**Saturday** **4:00 PM**

### **A Church Course on Science and Faith for Adults**

**Fred S Hickernell**

There have been several presentations at ASA conferences on science and faith courses given in the college community. While churches often sponsor creationists to give their perspectives, there has not always been the balance of Christians in science to express their views. An eight-week course with 2-hour meetings on succeeding Mondays entitled "Faith and the Physical World" was initiated by the authors in our Baptist church.

In the initial meeting, the 20 adult participants were asked to write down questions they had about science and religion. It provided a basis upon which the rest of the eight weeks could address their concerns within the framework of the course structure. The sessions included the following topics: the nature of science and Christianity, balancing science and Scripture, persons of faith and science, the Hebrew-Christian influence on the rise of science, Christianity and science in conflict, and the origin of the universe and humans. A small amount of homework was given each time, usually of a scientific nature, such as the age of the universe using red shift data. Throughout the sessions, there was an assignment to share with the class, articles from newspapers and magazines which discussed the science-faith area.

The course grew to a total of 30 attendees, although not all were able to attend every session. The questions, course summary, and course discussions will be highlighted in this presentation. It is the hope of the authors that such an adult course may become a part of their church activities.

**Saturday** **4:30 PM**

### **Elements of the Scientific Method in Scripture**

**John C Munday**

Many Christian analysts have emphasized that science developed most

strongly in cultures influenced by Scripture. Reasons offered have included Scripture's emphasis on an orderly observable universe governed by a trustworthy creator. Fewer analysts have noted instances in Scripture where a specific element of the scientific method has been illustrated or endorsed.

Many non-Christians in contrast have decided, based on disputes concerning what Scripture says about Earth history and biology, that the Bible is anti-science. In response to this cultural background, the present study involved a combing of Scripture for instances illustrating or endorsing specific elements of the scientific method and the general principles permeating its use. A large number and variety of instances were found, leading to the conclusion that the Bible endorses the scientific method.

It was recognized at the outset that the scientific method has a variety of formulations and attendant principles. The analytical method used in the study was a systematic search of Scripture for (1) declarative prescriptions (mandates and commands), (2) statements of principles, (3) lessons from anecdotal narratives, and (4) reasonable inferences from various Bible passages. Prescriptive and descriptive materials were distinguished. To a lesser extent, the study also involved inferences based on generalized biblical material, and identification of relevant models, paradigms, and biblically-based ethics. The study was guided in part by expressions by authoritative scientist-Christians; church elders; recognized reliable Bible teachers and authors; doctrinal statements, creeds, and catechisms; and collective understanding by the whole church (in the generally orthodox tradition).

Thus, in general, a biblical epistemic milieu was identified that relates positively to the scientific method. Some of the concepts treated in the study are objective truth, epistemic foundations, observation, measurement, experiment, empiricism, instrumentalism vs. realism, methodological naturalism, fact, hypothesis, law, theory, logic, probability, deduction, induction, falsifiability, causation, cumulative convergence, coherence,

## ENVIRONMENT

and preconditions necessary for science.

Saturday

5:00 PM

### **Pastors Need to Hear from Christian Geologists** Ken Wolgemuth and Gregory S Bennett

Pastors educated in our seminaries receive little or no training about the geology of the Creation, even though they will preach about the Doctrine of Creation from Genesis and the other Creation passages in the Bible. We recognize that Christian scientists almost never communicate with pastors and lay persons about geology, and so we are creating 11x17 posters for a portable stand for discussion in an office or around a coffee table.

We have observed that pastors without a basic understanding of God's Creation invite to their churches Christian groups who present pseudo-science in numerous weekend seminars. Both the pastors and the people in the pews lack the scientific training to detect the pseudo-science. These invited groups mishandle scientific information, and disseminate a young-earth viewpoint claiming evidence that is factually incorrect and scientifically illogical.

Supporting the dominant view held by almost all Christian geologists, several types of geological evidence demonstrating that the earth is older than 6,000 years will be shown—evidence that pastors can easily understand. We will show the tree-ring chronology that extends back 12,400 years, ice core chronology that goes back past 60,000 years in the Greenland ice sheet, and the varve chronology of Suigetsu Lake in Japan extending back 40,000 years, with radiocarbon data that supports the chronology. A list of over thirty types of evidence in support of an old earth will be shown.

Additionally, we are prepared to offer 1/2- to 2-day seminars in seminaries to assist pastors in understanding the physical Creation—showing the connection between the written Word and God's Creation. Help us make the connection to seminaries that need exposure to credible geological knowledge.

## ENVIRONMENT

Sunday

1:00 PM

### **Cultivating a Personal Christian Environmental Ethic** Leslie Wickman

Sometimes it seems as if our culture is inundated with secular jargon regarding environmental issues, with rhetoric about saving Mother Earth, the Gaia Hypothesis, and the idea that the entire earth and everything on it is most properly viewed as a single organism. But what ought to be our perspective as Christ-followers? I believe there is great merit in acknowledging our calling from the Creator to be caretakers of his creation, and that we as Christ-followers should be leading the charge to care for the earth and all that is in it. Various verses of Scripture speak of the value God puts on creation.

There are two specific passages of the Bible that have had the greatest impact on my personal view of creation. The first is at the end of the first creation story in Gen. 1:31, which reads, "And God saw everything that he had made, and behold, it was very good ...". If God reviewed all that he had created and thought it was good, how much more should we respect and care for it? The second, very familiar passage is from John 3:16: "For God so loved the world that he gave his only Son, that whoever believes in him should not perish but have eternal life." It is worth noting that the word translated "world" in our Bibles is actually "cosmos," which includes every created thing in the entire universe! Just think about what that means. God loved all of his creation so much that he sent his son, Jesus, to die for it to reconcile it to himself! God must truly, deeply love everything he made!

Sunday

1:30 PM

### **Teaching Christian Stewardship using Design Method** Craig Rusbult

A logical extension of my PhD dissertation (about Scientific Method and its potential applications in education) is a model of Design Method [google to

find it] for problem solving in most areas of life, for the design of a product, strategy, or theory. In design method, you define a problem (an opportunity to make things better) and goals (desired characteristics of a "solution" that would make things better), generate options for a solution, and for each option compare your goals with predictions (from mental experiments) and/or observations (reality checks from physical experiments) and then analyze, evaluate, and decide.

Design method is a framework that promotes creative-and-critical improvisational thinking, so it is useful in a thinking skills curriculum. It connects design (in engineering and other fields) with science, which is the designing of theories about nature. It can be used repeatedly in the same course, with different problems, to help students learn a disciplined approach to problem solving. And because design is used in all subject areas, design method can be used as a transitive connector between areas to facilitate transfer of thinking skills. Finding effective solutions for environmental problems requires flexible non-specialized thinking, and design method provides an integrative structure for an interdisciplinary solution-seeking process.

We'll look at design method and education in the context of current environmental challenges, with examples (cooling & heating and Cool Biz & Warm Biz, ...) that illustrate appropriate use of science and technology. We'll consider the effects of ethical principles (greatest good for greatest number, veil of ignorance, game theory, tragedy of the commons, biblical principles that include loving your neighbor as you love yourself) and practical psychology, sociology, and economics in a Christian worldview.

Sunday

2:00 PM

### **Natural History as a Foundation for Creation Stewardship** Keith B Miller

We cannot be proper stewards of creation without knowing that creation, and we cannot know creation without knowing something of its

history. The natural world as we see it is a consequence of its history. The biota characteristic of a place, the topography of the landscape, and the geology of its underlying rock are all there because of the history of that place. The history of a place can be seen in the composition and arrangements of its bedrock, in the shape of its valleys and landforms, in the distribution and interrelationships of its organisms, and in the amino-acid sequence of every genome.

Understanding natural history must be a fundamental objective of creation stewardship. The natural world is not static but dynamically changing over a vast range of time scales. It simply cannot be understood without reference to this dynamic change. Human actions have significant impacts on the natural world, which have often been destructive and disruptive. However, Christian stewardship calls us to an active involvement in the created world that preserves and redeems.

Understanding the dynamic processes of the natural world, and the time scales at which they occur, better enables us to anticipate and recognize the consequences of human activity. Such knowledge informs our decision-making, and helps to minimize negative consequences, and promote the flourishing of both the creation and humanity.

Creation is a complex network of interacting systems, each of which is composed of innumerable entities that are themselves continually responding and changing. In our interactions with the rest of creation, we become part of that interacting network. Our presence changes the rest of creation, and it, in turn, changes us. If we act in ignorance of the natural history of our environment, we will find ourselves in conflict with the very natural processes that support our own lives, and will jeopardize the future of our children's world.

Sunday

2:30 PM

### Sonar Training: Stewardship and the Supreme Court Lin Allen

This study addresses Christian stewardship and the environment by examining *Winter, Secretary of the Navy, et al. v Natural Resources Defense Council, Inc., et al.* The case ruling revolves around "Active sonar, a complex technology" used for detection purposes. My research provides a rhetorical analysis of the dissenting opinion, highlighting stylistic and structural elements asking the Court for an injunction on Navy sonar training.

The case for the injunction is analyzed, highlighting Justice Ginsburg's arguments, with whom Justice Souter joined. In spite of Chief Justice Roberts' conclusion that "The most effective technology for identifying submerged diesel-electric submarines within their torpedo range is active sonar," Ginsburg writes, "The EIS requirement 'ensures that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast'" (490 US, at 349 [p. 12]). Ginsburg cites systemic harms from sonar:

The Navy's own EA predicted substantial and irreparable harm to marine mammals. Sonar is linked to mass strandings of marine mammals, hemorrhaging around the brain and ears, acute spongiotic changes in the central nervous system, and lesions in vital organs (490 US, at 349 [p. 14]).

Prevailing, plaintiff *Winter's* arguments were favored over the Natural Resources Defense Council and filmmaker Jean-Michael Cousteau. My analysis provides a new approach, examining arguments for sonar training that reveal the power and philosophy of technology in a context of military preparedness, issues salient to sacred custodial realms.

Sunday

3:30 PM

### On Eschewing a Policy-Prescriptive Role for Science in Environmental Controversies

Johnny Wei-Bing Lin

Because science is the study of nature, and is assumed to authoritatively describe the state of the environment, debates over environmental problems are often debates over the science of the problem. What does science say the problem is, and what should we do about the problem? While those who ascribe such authority to science may value theology and ethics, the content of stewardship is seen as flowing from the science. Theology tells us why we need to care for creation; ethics gives us standards by which we can evaluate how a healthier environment flows from and contributes to the moral life, and science tells us what a healthier environment is and how to make it healthy.

In this talk, I will argue that for all its descriptive power, science is not, in general, "policy-prescriptive," and does not directly prescribe the content of environmental stewardship. Thus, debates over what constitutes an environmental problem (e.g., pollution, deforestation, global warming, etc.) and what practices are needed to fix the problems (e.g., air quality controls, land-use regulations, alternative energy sources, etc.) cannot be settled solely by an appeal to science. Science needs the help of ethics to define policy.

First, we consider philosophical arguments about whether science determines policy goals, and find that science alone cannot, in general, do so. Second, we consider how policy goals are translated into policy choice, and find that particularly for environmental controversies, science and ethics must together determine which policies to implement. Finally, we propose an alternative model of determining the content of creation-care with respect to environmental controversies, one marked by greater humility as well as a greater potential for success.

## EDUCATION

Sunday

4:00 PM

### The Ethics of Meat Consumption

Jay Hollman, Jerry Risser, and Joseph Sheldon

Meat consumption has been an issue in the church and moral ethics since the Corinthians. Current issues involve the humane care of animals, the health implications of meat eating, and the environmental impact associated with intense agriculture. PETA (People for the Ethical Treatment of Animals) distorts science and fosters an ethic that equates animal rights with human rights. However, the forced feeding of geese to produce foie gras and some methods used to produce gourmet veal seem to be intuitively unethical. Factory farming and certain slaughterhouse techniques represent a balance between industrial efficiency and animal welfare. The most egregious abuse of animals could be curbed through better regulatory oversight. Elimination of factory farms will increase the costs of food products.

The health benefits of eating a vegetarian diet are often overstated. The effects of this diet are sometimes difficult to separate from the effects of over-nutrition and obesity. The American Heart Association's and the American Cancer Society's suggested diet is essentially the same: decreased consumption of saturated fats and cholesterol which come primarily from meat, dairy, and egg consumption, and increased portions of fruits and vegetables. Fish instead of beef is healthier.

The major concern with heavy meat consumption is the impact on the environment. It requires about 10 times as much farmland to produce a pound of animal protein compared to a pound of plant protein. As the developing world increases their consumption of meat, more land is needed for agriculture, independent of population growth, resulting in deforestation and over-grazing. Cattle and other ruminants burp methane contributing to global warming; global animal production contributes more to global warming than transportation. Intensive farming has lowered water tables and increased nitrogen and phosphorous pollution leading to contamination of rivers and ground water.

Individually, justice should require us to curtail our over-consumption in general and our meat consumption in particular. Raising rents on public lands for grazing, more regulation of animal factories, and even an environmental consumption tax on meat might be just. The effect of increased prices should decrease consumption leading to less pressure on the environment and probably a healthier diet for Americans.

Sunday

4:30 PM

### Use of Bioengineered Artificial Reefs for Ecological Restoration and Carbon Sequestration

Steven G Hall

In Louisiana and other coastal areas, a combination of sediment settling and sea-level rise has led to dramatic losses of valuable coastal wetlands. These losses have in turn impacted coastal activities such as fishing, shipping and coastal communities. In order to reduce or reverse these impacts, a variety of measures are being enacted.

Among these projects is the use of bioengineered reefs to restore local ecology, encourage sediment deposition, and simultaneously sequester carbon in the shell material of bivalves such as *Crassostrea virginica*, the eastern oyster. These reefs rely on relatively small frameworks of material on which sessile organisms such as *Crassostrea* can build, but which are ultimately dominated by biomass from the growing reefs. Rates of growth of sessile and mobile organisms along with other biotic measures are important in this field. Simultaneously, physical parameters such as sedimentation, sinkage, erosion, and wave dissipation are also critical to the overall success of such techniques.

Each of these areas will be discussed. Their impact on potential changes in coastal biology and geography, as well as realistic potential carbon sequestration rates for large scale reefs, have been explored. The potential for the use of plants such as mangroves (e.g., *Avicennia germinans*) and oysters in combination is another area of interest, but techniques for co-culturing of such species require additional considerations. Development of both the basic knowledge of these ecological systems,

as well as the engineering techniques for building, deploying, and maintaining them are areas of rich potential.

Sunday

5:00 PM

### The Spilling Quiver: Sunshine, the Commons, and the Temple of the Lord

Sean M Cordry

Growing media and public interest in the so-called quiver-full theology among some Christians has grown recently, including a reality-television show called "18 Kids and Counting." Intended to be a conversation stimulant among Protestant Christians, this paper will present the main theological idea behind the movement and provide three critiques.

The first critique is Malthusian in nature: the amount of both solar radiation and agricultural land is limited; a simple calculation of the maximum sustainable human population of the earth yields a maximum between 3 and 5 billion. (This calculation will be presented.) The second connects the movement to the Tragedy of the Commons, noting that there are serious creation-care/social-justice issues at stake. Finally, the third critique examines the movement in light of a misplaced trust in what God may or may not do regarding his creation.

Suggestions will be made regarding how to create greater awareness of human population issues among Protestant Christians.

## EDUCATION

Sunday

1:00 PM

### Nature Study for K-12 Education

Kimberly C Dawes

In the late 19th and early 20th centuries, nature study shaped K-12 curricula, scouting, and university studies. Initially, nature study was taught concurrently with science. By the mid- to late-20th century, nature study was dismissed as the easy "feminine" substitute for more rigorous science courses, and its use was abandoned by schools. Interest in nature study and related endeavors,

such as school gardens, has reawakened in the past 20 years. However, if nature study is not conducted with rigor and breadth, it risks becoming marginalized again.

Nature study is unique in that it encompasses two modes of learning: an outdoor nature walk with finds recorded in a notebook and supplemental learning from personal research or from local experts, such as beekeepers. Each semester has a theme (e.g., geology or ornithology). During the walk, each student is encouraged to find things related to the semester's theme and select one that interests him or her. Dates and details are recorded in their nature notebook and, upon return to the classroom, a painting or drawing from a sample or from memory is added. Photographs or a labeled collection can also memorialize their finds. Research or consultation results in the adding of more details (e.g., the name of the find and its various parts). As the notebook is the student's possession, he or she is free to add details of new findings outside school hours.

Nature study has many advantages. It brings the child outside and develops skills of careful observation and accurate recording. Students learn to identify creatures and plants, recognize signs such as nests or tracks, note seasonal changes, and become familiar with their own neighborhood and local environment. More importantly, it promotes inquisitiveness, relates science to life, develops aesthetic emotion, and fosters a personal abiding relationship with God and his creation.

**Sunday** **1:30 PM**

**Integration of Christian Worldview into Science Teaching: Teaching Philosophy of Science to General Chemistry Lab Students**  
William B Collier

In a previous ASA paper (Collier, 2008), I criticized the simplistic explanations of science and the scientific method that are frequently presented in our introductory university science classes. This paper describes my attempt to rectify this situation in my own university environment.

A brief 3–5 minute PowerPoint presentation of select simplified key concepts from introductory philosophy of science (and history of science) curricula, with accompanying Socratic question-and-answer dialogue, was presented at the start of each lab for two major-level General Chemistry II laboratory sections. An anonymous survey was taken of the students at the start and at the end of the semester to assess the impact on the student's conception of science and the scientific method, and the relationship between science and Christianity.

In this talk, I will discuss the concepts selected, why and how I attempted to integrate them with Christianity, the survey results, and the impact on the students (and professor) for good or naught.

**Sunday** **2:00 PM**

**A Survey of How the Subject of Origins Is Taught**  
Jerry R Bergman

One hundred biology high school and college faculty at secular schools were surveyed by telephone or in person to determine how they handled the subject of origins. An open-ended survey was used to allow individual expressions in answer to the list of five questions asked each person willing to be interviewed.

It was found that one of the most common approaches to the subject of origins was to explain to the class that religion and science were separate disciplines and had different answers to the subject of origins.

Another common approach was to relate to the class that the means God used to create was by evolution; therefore there was no conflict between religion and evolution.

A third common approach was to inform the students that evolution is fact and theological explanations were faith, and fact only would be covered in their biology class.

Last, one approach was to relate to the class that science had proven how life originated, falsifying theological explanations. Several professors stressed that evolution from molecules to humans was fact, and those who

disagreed must accept this view or they would fail the class, or they could drop the class now. Some of the legal implications of each approach used will be discussed.

**Sunday** **2:30 PM**

**Science vs. Religion in the Controversy over Texas Science Textbook Standards**  
Ide P Trotter

The religion vs. science controversy has become a straw man in the ongoing debate over how science, especially biological science, should be taught. This paper deals with this issue in relation to teaching at the high school level in Texas. The historical background in Texas and developments in other states leading up to this year's acrimonious hearings before Texas' State Board of Education will be put in context. Later attempts to override the Board's action in the Texas legislature will also be addressed. An overview of the primary issues brought out and lines of argument offered will be covered.

The debate in Texas contrasted two views: (1) One side maintained that anyone questioning evolution as heretofore presented in high school texts is covertly attempting to slip religious beliefs into science teaching. Evolution should be presented as a settled "fact" and the few unresolved issues should not be presented to students as they might distract students from that understanding. (2) The other side argued that the path of all science, biology included, is to advance into unknown areas. An age-appropriate conception of the state of knowledge must be imparted, but shielding students from the excitement of the quest is counterproductive. Biology should be taught in the same way as any other field of science.

**Sunday** **3:00 PM**

**Better Thinking through Chemistry: A Theological Prescription**  
James Peterson

When one drinks coffee to wake up, one is altering mental function by a chemical intervention. Should Ritalin

or Prozac be as prosaic? The Christian tradition welcomes intervention in the physical world for godly purposes. What might be appropriate purposes and methods for pharmaceutically altering brain function?

The National Institute of Mental Health (USA) reports that 26.2% of Americans 18 and older have a diagnosed mental disorder. To alleviate this suffering, psychoactive medications are often prescribed and many people self-medicate with drugs such as alcohol. Medications that free one from physically caused, misdirected, or overwhelming mental pain or confusion should be welcome, but need to be distinguished from feelings of psychological distress that are helpful in warning that something is wrong and needs attention before the damage is worse. In these latter cases, masking mental stress can miss an opportunity for needed growth.

Beyond cases of coping with debilitating mental dysfunction, most Christians pursue further changes in brain network and chemistry through interventions such as nutrition, education, and practice. Are pharmaceutical interventions warranted in parallel to enhance disposition and thinking? For example, could a drug that helps one exercise self-control be a supplement to that aspect of the fruit of the Spirit (Gal. 5:22)? Would such be as much rolling back part of the fall as pain relief in child birth? Would such be an appropriate precursor of when our perishable bodies will inherit the imperishable?

This paper will seek what theological questions, insights, and standards might help us to discern proper use of pharmaceutical interventions in the brain.

**ORIGINS**

**Sunday** **1:00 PM**

**Four Myths about Intelligent Design and Four Myths about Theistic Evolution**

**Loren Haarsma and Stephen Meyer**

Certain criticisms of Intelligent Design (ID) and of Theistic Evolution (TE) are

frequently repeated. These criticisms arise from common over-simplifications and misunderstandings of ID and TE. Four common criticisms of ID are: (1) ID simply isn't scientific; (2) ID is a science-stopper; (3) ID is just creationism in disguise; and (4) ID is based on a theology of god-of-the-gaps or episodic deism.

Four common criticisms of TE are: (1) TE advocates don't confront atheism; (2) TE is essentially deism because God isn't acting as a creator in any meaningful sense; (3) TE advocates embrace methodological naturalism in science because they don't believe in miracles (or are embarrassed by miracles); (4) TE advocates support evolution because they are worried about their jobs or scientific respectability.

One reason these "myths" are common is that several of them are, in fact, true about some ID and TE advocates and writings. However, none of them are intrinsically or necessarily true about ID or TE. It is false—literally bearing false witness—to say or imply that these things are true about all ID or all TE advocates.

In this talk, we will examine each of these myths in more detail. Our goal will be a more accurate understanding of each position, and a more gracious attitude toward advocates of each position.

**Sunday** **2:30 PM**

**Human Genomics: Vestiges of Eden or Skeletons in the Closet?**

**Dennis R Venema**

The availability of complete genomic sequences for humans and several additional mammalian species offers the opportunity to test hypotheses of human evolution at an unprecedented level of detail.

Several lines of evidence from the genomic data suggest that humans share a common ancestor with the great apes, and that the minimum human population size has not been less than 1,000 individuals since speciation. These lines of evidence will be explored and evaluated with a view to their implications for various concordist approaches to the Genesis narratives.

**Sunday** **3:30 PM**

**Were Adam and Eve Historical Figures? Yes, Indeed!**

**C John Collins**

The best way to account for the biblical presentation of human life is to suppose that Adam and Eve were real persons, and the ancestors of all other human beings. The biblical presentation concerns, not simply the story in Genesis and the biblical passages that refer to it, but also the larger biblical storyline, which deals with God's good creation invaded by sin, for which God has a redemptive plan; of Israel's calling to be a light to the nations; and of the church's prospect of successfully bringing God's light to the whole world. It further concerns the unique role and dignity of the human race, which is a matter of daily experience for everyone: all people yearn for God and need him, and depend on him to deal with their sinfulness, and crave a wholesome community for their lives to flourish.

**Sunday** **3:30 PM**

**Adam and Eve as Symbolic Figures in Biblical Literature**

**Daniel Harlow**

This paper explains why most biblical scholars regard Adam and Eve as purely symbolic figures, and why they do not find the Christian doctrines of the fall and original sin in the text of Genesis 2-3 but in later interpretations of Genesis. The paper discusses the literary genre of Genesis 1-11, the adaptation of ancient Near Eastern myths in Genesis 2-3, the presence of two creation accounts in Genesis 1 and 2, and specific narrative indicators in the text of Genesis 2-3 which support a symbolic reading of these chapters.

The paper also examines Paul's interpretation of Genesis in his typology of Adam and Christ, arguing that though Paul probably did regard Adam as a historical figure, we are not obliged to. Paul was chiefly interested in Adam as a representative counterpart to Christ, and the role he assigned Adam in the entry of sin into the world was more temporal than causal. The doctrine of original sin does not require that Adam and Eve be historical figures.

Sunday 3:30 PM

**Genetic Science and Christianity's Story of Human Origins: An Aesthetic "Supra-Lapsarianism"**  
John Schneider

The most recent genetic science seems to discredit Christianity's story of human origins at points that are essential to Christian teaching as a whole. According to this science, the human race descended from thousands of original parents, not just two; human beings emerged in violent natural conditions of brutal competition between species for survival, not utopian ones; and they inherited all the selfish animal instincts and behaviors of species from the beginning, so that moral awareness and moral freedom made possible a nascent moral and spiritual human character. The science, then, obviously poses fundamental challenges to Christian doctrines of creation, fall, and original sin. Likewise, it poses serious challenges to common Christian teaching on salvation, as framed by these doctrines on human origins; and it also poses challenges to common Christian explanations (theodicy) for the existence of natural and moral disorder and evil, as built on Genesis 1-3.

Christian thinkers who have begun recasting the Christian story have done so mainly in the light of science. In this paper, the author proposes that Scripture can be used for very similar purposes. The main thesis is that the Book of Job corrects and deepens the simpler Deuteronomic understanding of Genesis 1-3. God has, in fact, deliberately embraced disorder and evil in his master plan for the world and humanity. The hard truth is not immoral, or amoral, but also not purely logical either (as in Leibniz's best possible world). It is best understood as *aesthetic* and as a sort of "supra-lapsarianism" (although not the old decretal sort) that has grounding in both Irenaeus and the Apostle Paul.

Monday 8:30 AM

**Personal Computer Application Programs as Tools for Conceptualizing Aspects of Evolutionary Theory**  
Robert Kaita

In general descriptions of evolutionary theory, examples of processes like "natural selection" are fairly straightforward to formulate. The advantage of bright plumage in attracting mates, for instance, could explain why males having it tend to dominate a particular population of birds. Analogies to other features, however, are more difficult to make. The fossil record typically shows organisms with long periods of stasis, followed by an apparent discontinuous change in morphology.

One idea is to draw a parallel with certain personal computer (PC) application programs that "adapt" to the way they are used. Electronic mail (e-mail) programs, for example, will exhibit "stasis" for long periods of time under the "constant" environment of a novice user. This could be one who simply reads and responds to messages sequentially as they are received. With experience, he or she might open e-mails from some senders first, and delete others without even looking at them. After awhile, the e-mail program "creates" priority e-mail and junk e-mail folders in response to this "environmental change." This new, more complex configuration remains in stasis until there is another environmental "stimulus," such as the user reading the messages from a particular sender before all others in the priority e-mail folder. The e-mail program then creates a special folder with that sender's name, and the cycle of stasis and "discontinuous" change continues.

Such an example conceptualizes such evolutionary principles as "punctuated" equilibrium, without the ad hoc idea of "preadaptation" to make it occur, and the development of the complex from the simple. The original simplicity, however, refers to the "phenotype" of the e-mail structure the user sees, and not the complex "genotype" of the underlying computer code. This could be used to foster a broader discussion of philosophical and theological issues concerning science and faith.

Monday 9:00 AM

**The Generation of Essential RNA Messages from Pseudogene Transcripts by Exemplar Causation**  
Richard V Sternberg

Many RNA transcripts in eukaryotic cells lack matching DNA templates. These ribonucleotide texts are the result of processing modifications, alternative and *trans*-splicing, and sundry RNA editing procedures that sculpt a plethora of messages. Indeed, in the chloroplasts and mitochondria of some taxa, entire open-reading frames including start and stop codons are literally "written" into pseudogene transcripts, generating the scripts for essential proteins. Regarding the latter cases, specificational complexity (or "information") can readily be demonstrated to *increase* relative to that of the inputted components. What is the source of this information?

For empirical and formal reasons, I unabashedly propose that RNA editing phenomena are instances of what has been termed "exemplar" or "vertical" causation, whereby Platonic patterns "recohere" in space and time via mechanistic means.

Monday 9:45 AM

**The Information Required for Metabolic Innovation, and Why the Darwinian Mechanism Is Not Apt to Be Its Source**  
Douglas Axe

Metabolism provides an exceptionally good opportunity for quantitative characterization of the relationship between genotypes and phenotypes. Unlike high-level traits, metabolic traits are increasingly understood in terms of the specific roles and structures of all molecular components. Along with this abundance of structural data has come rapid advances in techniques for genetic manipulation and analysis. Consequently, it is now possible as never before to fully deconstruct evolutionary accounts of the origins of this phenotypic class.

Here I summarize the hierarchical nature of the protein systems responsible for metabolic complexity and discuss several recent studies that

investigate the role of information in its origin.

Monday

11:00 AM

### Evolutionary Informatics: Measuring the Cost of Success

Robert J Marks II and William A Dembski

Conservation of information theorems indicates that any search algorithm performs on average as well as random search without replacement *unless* it takes advantage of problem-specific information about the search target or the search-space structure. Three measures to characterize the information required for successful search are (1) *endogenous information*, which measures the difficulty of finding a target using random search; (2) *exogenous information*, which measures the difficulty that remains in finding a target once a search takes advantage of problem-specific information; and (3) *active information*, which, as the difference between endogenous and exogenous information, measures the contribution of problem-specific information for successfully finding a target.

We present a methodology based on these information measures to gauge the effectiveness with which problem-specific information facilitates successful search. We then apply this methodology to various search tools widely used in evolutionary search and show that, without active information, even the multiverse cannot support search for even moderately sized problems.

Monday

11:30 AM

### The Origin of Higher Taxa

David Campbell

Many anti-evolutionary sources claim that the pattern of taxonomic origin, in which the number of new phyla and other higher taxa peaks relatively early in the fossil record, poses a serious challenge to conventional evolutionary models. In reality, this pattern is expected to some extent under any origins scenario, and especially under an evolutionary scenario. The hierarchical nature of taxonomic categories makes the average time of appearance for higher categories earlier than for

the categories they include. Because fossil preservation varies in quality, some fossils are assignable to a higher category but not more specifically. Also, identification of some taxa requires exceptionally preserved specimens, which reflect conditions at certain times and places. All of these hold true under any origins scenario.

Under an evolutionary scenario, specimens might also be hard to place in a lower taxon because they are transitional forms. Additionally, the features shared across an entire phylum would be those that evolved before features confined to a single class, and so forth. Similarly, the groups that we recognize as phyla would be groups that diverged from each other relatively early. Relatively rapid evolutionary diversification is expected when new opportunities open up, so a brief early period of diversification would not be surprising.

This incorrect argument also reflects some misconceptions about the actual patterns of origination. Both conventional scientific sources (e.g., biology textbooks) and anti-evolutionary sources often claim that all animal phyla appear in a very short interval of the early Cambrian. Although the Cambrian radiation is impressive, it's not quite as drastic as that—some phyla appear earlier and some may be later. More generally, apologetics arguments will not be sound if they do not reflect a careful effort to accurately represent the implications of alternative views under consideration.

Monday

12:00 PM

### Is It Wrong to Quantify Wonder?

David Snoko

Many Christians feel wonder when learning about things in nature, but are uncomfortable with the ID movement trying to put numbers on it. In this talk I will discuss issues involved in quantitative arguments for design, and I will discuss the general problem of how to contrast designed things with undesigned things in a universe in which everything is designed by God. Finally, I will present results of a numerical model of evolution which gives predictions for degrees of vestigiality in evolving organisms.

## SCIENCE AND TECHNOLOGY IN SERVICE OF THE POOR

Sunday

3:30 PM

### The Role of Comparative Advantage, Distributed Agency, and Distributed Knowledge in Sustainable Economic Development

Steven W Bradley

Developing nations typically offer two resources that attract direct foreign investment: valuable but depletable natural resources and/or a large, educated, low-cost labor force. Many subsistence economies are constrained in both these areas leading to a lack of capital and opportunity. Alternative entrepreneurial approaches have been offered suggesting microcredit or base of the pyramid approaches as a path forward. While helpful, both have drawn increasing concern and scrutiny related to their viability or their ability to reduce poverty broadly and over a longer time horizon.

We depart from the conceptualization of sustainable development that considers agency as vested specifically with institutions or with heroic entrepreneurs. We suggest that sustainable development is distributed. Knowledge of the span of resource utilization extends beyond any one mind and that agency in the development of resources involves multiple actors. Our perspective on sustainable development integrates the social construction of technological systems literatures with knowledge and resource based theory.

Using the Ricardian notion of comparative advantage, we argue that identification of a renewable resource that is unique to a developing nation, or at least not easily imitated by developed nations, is a starting point for sustainable economic development. In our case, we examine the conversion of coconuts into multiple value-added products. The development of this resource or "artifact" and the technologies associated with it are path dependent based on prior knowledge of the agents associated with the resource. Therefore, the current technologies and value associated with the resource will vary by country depending on the distributed agents'

construction of the artifact's current use.

We argue that the knowledge of the social entrepreneur broadens the potential trajectories for technological development of the resource and increases its potential value by providing external knowledge and capital to commercialize the resource. The indigenous entrepreneur refers to the agent who navigates the unique institutional challenges of the undeveloped nation to enable production. Finally, institutional agents, whether formal or informal social institutions, minimize adverse selection or moral hazard limiting opportunistic exploitation by other parties.

**Sunday** **4:00 PM**

**Microhydro-Generation of Electricity: Providing Physical and Spiritual Light in Honduras**  
Brian Thomas

A franchise based company to provide electricity to rural Honduras using microhydro-generation will be presented. The details of the technology will be presented along with the business plan that has been developed. The ministry potential that it has, meeting physical and spiritual needs concurrently, will be presented.

**Sunday** **4:30 PM**

**Serving the Poor by Making Better Cook Stoves**  
Walter L Bradley and Elisa Guzman-Teipel

Three billion people cook using biomass (mainly wood) each day on inefficient, polluting cook stoves that are health hazards. An overview of recent developments to produce durable, energy-efficient, clean-burning cookstoves at an affordable price will be presented.

**Sunday** **5:00 PM**

**Coconut Composites: New Products to Bless Poor Coconut Farmers**  
Stanton Greer

The 11 million coconut farmers around the world get less than 10 cents per coconut and make an average of

\$500/year. The unique properties that God has placed into coconuts have been explored and new applications that take advantage of these properties have been developed into a wide range of commercial products, including automotive composites. The whole process that resulted in this fascinating project to bless poor coconut farmers will be presented.

**Monday** **8:30 AM**

**Worldview by Affordance-Based Reverse Engineering of Complex Natural Systems**  
Dominic M Halsmer

Recent advances in the field of engineering design suggest the usefulness of the concept of affordance for reverse engineering of both man-made and natural systems. An affordance is simply what one part of a system provides to an end-user or to another part of the system. Affordances can be viewed as either positive or negative, and also exhibit a particular quality, which is how well this provision is thought to be executed.

With the current recognition that engineering concepts are playing a key role in deciphering the workings of complex natural systems, such as the living cell or the human brain, it is suggested that affordance-based reverse engineering procedures might be appropriate tools. It is further suggested that such an approach might have important implications for worldview. Procedures for reverse engineering and design recovery have become well defined in several fields, especially computer software and hardware, where pattern detection and identification play important roles. These procedures can also be readily applied to complex natural systems where patterns of multiple interacting affordances facilitate the development and education of advanced life forms, such as human beings.

Thinking about the human condition in terms of affordances leads to a new and fruitful interaction between the fields of science and theology, in which the field of engineering plays a key role in the dialogue. Proper understanding of the interplay between both positive and negative affordances in the context

of engineering design under necessary constraints leads to a clearer worldview and a better understanding of humankind's place in the universe.

**Monday** **9:00 AM**

**A Christian Approach to the Ethics of International Development Projects**  
William M Jordan, Brian Thomas, and Ryan McGhee

This paper examines ethical issues related to international engineering service projects that include economic development as part of their goals. Projects that have economic goals as well as engineering ones have some unique ethical issues.

One issue is how the design relates to the local community. Often engineering service learning is done with a local agency that claims to represent the needs and desires of the local community that will be served by the project. We need to make sure this project is really needed and wanted by the people it is designed to serve. This complicates the design process and raises ethical issues if these two groups are not in total agreement. Many service projects do not have a long-term impact because they cannot be sustained by the local community.

One way to deal with this is to help local people create an ongoing, for-profit business that can maintain the project and provide jobs for the poor community that would not otherwise exist. Making sure the company treats its workers and community well in addition to making a profit is not an easy task. However, a Christian ethics approach requires that we fulfill all three of these needs at the same time. This is commonly referred to as creating a Triple Bottom Line business.

We will use as an example our current work in rural Honduras. Over the last several years, teams of students and faculty members have installed several micro-hydroelectric systems. This past year we have made a key part of the project the creation of a local energy company that can provide cheap electricity to the villagers as well as jobs for the local community.

**CHRISTIAN PERSPECTIVES  
ON THE SOUL**

Monday

8:30 AM

**Evolution and the Image of God:  
Historical Reflections on Science,  
Morality, and Human Nature**

Edward B Davis

Since at least the mid-nineteenth century, Christian thinkers have responded in various ways to scientific claims for continuity between humans and other animals. Why have some Christians rejected such claims as irreligious? Why have other Christians accepted them? What have been the most important issues?

In this brief survey of 150 years of the conversation about evolution, morality, and human nature, I will answer these questions and raise additional questions about the relationship of science and Christian faith today.

Monday

9:15 AM

**Body and Soul:  
Biological Theories of Generation  
and Theological Theories of  
Ensoulement**

Sara Joan Miles

Biological understandings of fetal development were strongly influenced by theological views of ensoulment until the first half of the 19th century. Greek opinions, both Platonic and Aristotelian, as well as Jewish concepts of soul, influenced Christian theology as it sought to deal with questions about the soul including both its origin (pre-existence, traducianism, creationism) and when and how the soul becomes joined to flesh. Early biological theories generally affirmed an epigenetic position, that is, they asserted the development of the fetus from unformed matter to formed matter, and the various theological positions were articulated in ways consistent with this position. In general, biology and theology seemed to work together to explain both development and ensoulment.

However, with the development of the microscope and under the influence of Cartesian and mechanistic philosophy, the epigenetic view was replaced with

a preformationist view, a mechanistic view, or a combination of the two. The earlier theological positions regarding soul were modified and/or used to support specific biological views and to argue against other biological ideas.

With the return to an epigenetic view of fetal development in the late 18th and early 19th centuries, the alliance between biology and theology became strained, forcing a reexamination of the theological views of soul and ensoulment. The resulting theological stances that were affirmed (or reaffirmed) had implications for Christian reactions to Darwin's theory of evolution and more recently to positions related to abortion and stem cell research. Therefore, an understanding of the history of the dialogue between science and Christian theology concerning ontological development and ensoulment is necessary to understand the current debates in these arenas.

Monday

10:00 AM

**Relating Body and Soul:  
A Collision between Theology,  
Science, and Good Intentions**

Rodney J Scott

The concept of the soul as described in Scripture and interpreted by theology is a bit mysterious and somewhat loosely defined. However, despite this, Christians often make assumptions about this aspect of the human person that are somewhat rigid. These assumptions frequently engender conflict between a theological perspective and ways of understanding the natural world based on observation. In several instances the popularity of such assumptions appears to be based more on perceived moral imperatives, than on sound theological reasoning.

This presentation will evaluate three specific assumptions that have often been held by Christians regarding the relationship between body and soul, and it will consider some possible consequences of the popularity of these views. The three assumptions to be considered here include the following: (1) that the soul is instantaneously created at the moment of fertilization, (2) that the soul is "complete" at the moment of its creation, and (3) that the soul is intrinsically "better" than the

body and is the part of the human being that is worth saving.

This presentation will consider the possibility that a model of the soul based on these assumptions may generate incorrect and unfortunate conclusions about certain aspects of our lives as human beings. It will also consider an alternative model that appears to harmonize better with observations derived from both science and Scripture—that the body and soul are intimately associated, that both develop and change in unity with each other, and that both are intrinsically good and worthy of saving and protecting.

The implications of each of the two models as they relate to several areas of concern for Christians will be considered. These areas of concern include issues related to the sanctity of human life, questions of spiritual well-being and the influence of the body, and matters of social justice.

**MISCELLANEOUS**

Monday

9:30 AM

**Science and Faith Issues in Islam:  
Is There an Avenue of  
Rapprochement between ASAers  
and Practicing Muslim Scientists?  
Kenell J Touryan**

The Islamic world consists of fifty-seven countries organized under the Islamic Conference. With well over one billion Muslims and extensive material resources, the Islamic world is disengaged from science and the process of creating new knowledge. One indicator is that Islam has given only two Nobel laureates to date, Abdusalam from Pakistan in 1979 and Ahmed Zewail from Egypt in 1999.

All of this is especially puzzling in view of the fact that in the 9th–13th centuries, Islam experienced its Golden Age, bringing about major advances in mathematics, science, and medicine. In fact, according to some leading Muslim scientists, this "arrested scientific development in the Muslim world contributes to the present marginalization of Muslims and a growing sense of injustice and victimhood among

them” which in turn provides fodder for the jihadist movement. What is worse, if left unchecked, the jihadist movement is poised to create a bloody clash of civilizations in the near future.

On July 27, 2008, Yale University hosted a high level Christian-Muslim dialogue among scholars from both faiths in order to foster a better understanding between Islam and the West. The question that should be raised is, could an ASA-type approach among Muslim engineers and scientists, many of whom take both their science and their religion seriously, help bring a rapprochement between the Western civilization and the Muslim world? Just as we in the ASA take the Bible seriously, so do almost all Muslim scientists and engineers that I have had the privilege to work with in the past 30 years take the Qur’an and the Hadith seriously. No question that there are serious differences between the Christian faith and Islam, the Bible and the Qur’an. However, are there some common grounds that can be fostered as one tool against Islamic fundamentalism, in which the ASA can play a catalytic role. For example, an article by a Muslim scientist bemoans the fact that Islamic intellectuals are rejecting Darwin and most are embracing creationism.

In this presentation, we will briefly review the Golden Age of Islam, then look at factors that have arrested scientific development in the past seven centuries, compare the creation accounts in the Qur’an and the Bible, and then attempt some possible dialogue with concerned Muslim scientists and engineers, who are open to seek harmony between their faith in a Creator and the scientific endeavor.

Monday 10:00 AM

**Edgar Allan Poe’s Big Bang Theory and the Power of Imagination**  
Harry Lee Poe

In 1841, Edgar Allan Poe introduced the first mystery story (“Murders in the Rue Morgue”) with a discussion of the limitations of empiricism and rationalism, insisting that the great breakthroughs come when imagination mediates the others. He then related the first mystery story to demonstrate how the same empirical data might be

explained rationally with a variety of explanations, all of which might be wrong.

In 1848, Poe took this line of thought to the extreme with his 150-page essay *Eureka* in which he argued that the universe expanded from a single primordial atom, that time and space are the same thing, that electro-magnetism and light are related, and that deity must be responsible for such a universe. Poe was dismissed as a lunatic for denying the well-established scientific truth of the eternity and infinity of the universe, and imagination remains in the closet.

**ASTRONOMY**

Monday 11:00 AM

**Importance of the Moon for Life on Earth**  
Joseph L Spradley

The earth’s moon in its origin, size, and location plays a unique and essential role for the existence of life on Earth. The earth’s moon is the largest moon in the solar system in relation to its host planet and appears to have formed in a unique way compared to all other moons, by a giant grazing collision. Such a collision probably removed greenhouse gases that would have trapped excessive heat on the earth, leaving it uninhabitable with a thick greenhouse atmosphere like that of Venus. The collision also thinned the earth’s crust and added internal heat to produce plate tectonics, helping to build continents and control climate. It strengthened Earth’s magnetic field enough to deflect dangerous cosmic rays by adding iron to the core and speeding its rotation rate. When the moon was young and closer to the earth, it would have had enormous tides that would have washed minerals into the oceans that were necessary for early life.

Tides caused by the moon slowed the earth’s rotation rate so that hurricane-strength winds would be reduced enough to permit life. They would also produce the tidal pools where life probably began, and continue to play an important role in cleansing the

oceans and preventing stagnation that would inhibit the development of life.

Recent computer simulations have shown that the moon stabilizes the tilt of the earth, and thus its seasons, preventing the kind of chaotic variations that appear to have occurred on Mars. The moon plays a role similar to that of Jupiter in sweeping up errant comets and asteroids that would otherwise hit the earth, as evidenced by some of the largest craters in the solar system. All of these factors suggest unique and unusual lunar features that make life on Earth possible.

Monday 11:30 AM

**Chemistry in Counterfactual Universes**  
Rollin A King

Numerous investigations in physics and cosmology over the last several decades have established many ways in which the existence of complex life depends upon the values of the fundamental constants. John Barrow emphasizes the “need to know all those constants of Nature whose values provide necessary conditions for the existence of observers” (*New Theories of Everything* [Oxford: Oxford University Press, 2007], 135). The generic observers referred to also require a suitable biochemistry, and little is known about the dependence of *chemistry* on the values of the physical constants.

I will report on the extension of fine-tuning investigations into the domain of chemistry, achieved by applying the tools of computational quantum chemistry to investigate hypothetical chemistries that would result if the constants had different values, given the observed physical laws. Specifically, the dependence of a variety of basic chemical quantities on the values of the fine-structure constant and the electron-proton mass ratio will be summarized.

Among a plethora of results, it is found that if the fine-structure constant were larger, covalent bonds between light atoms would be weaker, and the dipole moment and hydrogen-bonding ability of water would be reduced. Conversely, an increase in the value of the electron-proton mass ratio

## ASTRONOMY

increases dissociation energies in molecules such as hydrogen, oxygen, and carbon dioxide. The implications of the results for the anthropic principle and the possibility of life will be discussed.

**Monday**

**12:00 PM**

### **The Star of Bethlehem: How a Near-Earth Asteroid Explains the Magi's Star**

**Richard G McClure**

In the eastern heaven, God chose to manifest the birth of his Son through the appearance of "his star." Even though Matthew uses the word translated "miracle" several times in his Gospel, he does not apply it to the appearance of the star. Likewise, a dream could have directed the

Magi to Jerusalem, like the one used to warn them against returning to Herod, but dreams leave only a message with no physical evidence. However, the observations of a near-Earth asteroid (NEA) make the account of the Star of Bethlehem understandable while presenting a new perspective into God's revelation.

Unlike the explanations that employ the pseudo-science of astrology coupled with such heavenly bodies as planets, novae, comets, or bright meteors, a NEA influenced by orbital mechanics would define the unique characteristics observed by the Magi: "the star they had seen in the east went ahead of them until it stopped ..."

The presentation includes PowerPoint diagrams that illustrate a potential NEA orbit mathematically determined

by a dynamic model of the sky and solar system. By understanding the tilt of the NEA's orbit when compared to Earth's orbital plane, the asteroid traces a path in the sky that matches that described by the Magi when they saw it in the east, and later on their way to Bethlehem.

The most significant aspect of the NEA hypothesis is that the two encounters with the asteroid can take place at times constrained by recorded history, such as the co-regency of Herod's son, the time of Zechariah's service in the Temple, the loyalty oath that brought Mary and Joseph to Bethlehem, the year of Herod's death, the date of the destruction of Herod's Temple as recorded by Josephus and Rabbi Yosef ben Halafta, and other events.

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# ***ASA Business Meeting Agenda***

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*Saturday, 1 August 2009, 5:30–6:30 PM, George W Truett Theological Seminary, Room 121*

- |   |               |
|---|---------------|
| 1. Call to order and opening prayer             | Ted Davis     |
| 2. Future meetings                              | Susan Daniels |
| 3. Secretary/Treasurer Report                   | Susan Daniels |
| 4. Introduction of newly elected Fellows        | Randy Isaac   |
| 5. Recognition of fifty years of ASA Membership | Randy Isaac   |
| 6. Remembrances                                 | Randy Isaac   |
| 7. State of the ASA                             | Randy Isaac   |
| 8. Offering for the ASA                         | Ted Davis     |
| 9. President's comments                         | Ted Davis     |
| 10. Closing prayer                              | Ted Davis     |