

Official Program

THIRTY-SEVENTH ANNUAL MEETING AND
BIOLOGY WORKSHOP

of the



**AMERICAN
SCIENTIFIC
AFFILIATION**

(Incorporated)

The American Scientific Affiliation is an association of men and women who have made a personal commitment of themselves and their lives to Jesus Christ as Lord and Savior, and who have made a personal commitment of themselves and their lives to a scientific understanding of the world.



**AMERICAN
SCIENTIFIC
AFFILIATION**

(Incorporated)

AUGUST 13-16, 1982

**CALVIN COLLEGE
Grand Rapids, Michigan**

OFFICIAL PROGRAM

Thirty-seventh Annual Meeting and Workshop

Meeting Theme: Designer Genes: God's Design and Man's Redesign

Workshop Theme: Preparing our Students to Serve Christ Through Professional Excellence

August 12-16, 1982
Calvin College, Grand Rapids, Michigan

WORKSHOP

THURSDAY, AUGUST 12

6:30 PM Registration for Workshop/Annual Meeting
Lounge: Beets-Veenstra Dormitory

8:00 PM Mixer (Beets-Veenstra Lounge)

FRIDAY, AUGUST 13

7:30 AM Breakfast (Commons Dining Room)

8:30 AM Workshop Introduction (Gezon Auditorium)
Donald W. Munro, Houghton College, Houghton, NY

8:40 AM Group Devotions
Wayne Frair, The King's College, Briarcliff Manor, NY

9:00 AM Symposium: (Gezon Auditorium) Chair: Simon Chung, Trinity College, Deerfield, IL
"Integration of Faith and Learning in the Biology Classroom", Albert J. Smith, Wheaton College, Wheaton, IL

9:45 AM Respondent: Lawrence McHargue, Southern California College, Costa Mesa, CA

10:00 AM Respondent: Charles Owens, King College, Bristol, TN

10:15 AM Break

10:45 AM Respondent: Dave Wilcox, Eastern College, St. Davids, PA

11:00 AM Small Group Discussions (College Center)

12:00 Noon Lunch (Commons)

1:00 PM Symposium: (Gezon Auditorium) Chair: George Harrison, Taylor University, Upland, IN
"The Role of Biological Research in the Christian Liberal Arts College", Russell R. Camp, Gordon College, Wenham, MA

1:45 PM Respondents Noel W. Falk, Messiah College, Grantham, PA

2:00 PM Respondent: Max R. Terman, Tabor College, Hillsboro, KS

2:15 PM Break

2:45 PM Respondent: Lester C. Eddington, Biola University, Los Angeles, CA

3:00 PM

Discussion

3:15 AM

"Au Sable Trails", Calvin Dewitt, Institute of Environmental Studies, Man-celona, MI

4:00 PM

Symposium: (Gezon Auditorium) "Career Counseling for Biology Majors", Marvin Hinds, Marion College, Marion, IN

4:45 PM

Respondent: "Medical and Dental", Donald W. Munro, Houghton College, Houghton, NY

5:00 PM

Respondent: "Allied Health", Gerald D. Hess, Messiah College, Grantham, PA

5:15 PM

Respondent: "Graduate Work", Jay Moore, Eastern College, St. Davids, PA

5:30 PM

Dinner (Workshop Attendees) (Commons)

ANNUAL MEETING

5:30-7:30 PM

Registration for Annual Meeting (College Center)

7:30 PM

Opening Session - Annual Meeting (Gezon Auditorium)

Chair: Chi-Hang Lee, President, ASA
Welcome- Peter A. DeVos, Provost, Calvin College, Grand Rapids, MI
Dan Andersen, President,

ASA Western Michigan Section
Announcements- Robert L. Herrmann, Executive Director

Introductions - Wayne Frair, Chair, Program Committee

Opening Address: "Design for Development", V. Elving Anderson, University of Minnesota, Minneapolis, MN

9:00 PM

Poolside Mixer (Phys. Ed. Bldg.) For Annual Meeting and Workshop Participants

SATURDAY, AUGUST 14

7:30 AM

Breakfast (Commons Dining Room)

8:30 AM

Group Devotions (C-301) John Cruzan, Geneva College, Beaver Falls, PA

9:00 AM

Address: "The Design of the Design", (Gezon Auditorium) V. Elving Anderson, University of Minnesota

10:30 AM

Plenary Session-Symposium: "Creation, What is it?"

Chair: David Willis, Oregon State University, Corvallis, OR

"What is Creation About?", Dewey K. Carpenter, Louisiana State University, Baton Rouge, LA

11:00 AM

"Creationism as Science or Religion?", Norman L. Geisler, Dallas Theological Seminary, Dallas, TX

11:30 AM

"Six Days, Six Ages, or What?", David F. Siemens, Jr., Los Angeles Pierce College, Woodland Hills, CA

12:00 Noon

Panel Discussion

12:45 PM

Lunch (Seating by disciplines, Commons Dining Room)

Parallel Session A--Science/Faith Relationships
(Room C-301)

Chair: Edwin Yamauchi, Miami University, Oxford, OH
"Objects and Projections: A Metaphor to Illustrate Complementarity", Howard J. Van Till, Calvin College, Grand Rapids, MI

2:15 PM "Living things as Obedient Systems", Dave Wilcox, Eastern College, St. Davids, PA

2:45 PM Break

3:00 PM "Genetics of Sin", Edmund R. Woodside, California Center for Biblical Studies, Culver City, CA

3:30 PM "Creation, Miracles and Nature: Speculations at the Interface Between Science and Theology", David F. Siemens, Jr., Los Angeles Pierce College, Los Angeles, CA

Parallel Session B - Symposium
(Room C-302)

1:45 PM Chair: Bernard Ten Brock, Calvin College
"Teaching Creation and Evolution in the Christian College", Martin LaBar, Central Wesleyan College, Central, SC

2:30 PM Respondent: Gerritt D. Van Dyke, Trinity Christian College, Palos Heights, IL

2:45 PM Respondent: Randall Brown, Huntington College, Huntington, IN

3:00 PM Break

3:15 PM Respondent: Larry E. Cockerham, Campbell University, Buies Creek, NC

3:30 PM Discussion

NATIONAL BUSINESS MEETING OF THE ASA
(Gezon Auditorium)

4:00 PM Everyone is invited to the Annual Business Meeting.

ANNUAL BANQUET

6:30 PM Dinner (Knollcrest Dining Room, adjacent to Beets-Veenstra Dormitory)

7:30 PM Presidential Address - Chi-Hang Lee, Del Monte Corporation, Research Center, Walnut Creek, CA

SUNDAY, AUGUST 15

7:30 AM Breakfast (Commons Dining Room)

8:30 AM Group Devotions (room C-301), Mike Sonnenberg, Nyack College, Nyack, NY

9:30 AM Worship with local church fellowships

12:15 PM Dinner (Commons)

1:30 PM Address: "Man the Redesigner", V. Elving Anderson, University of Minnesota

Parallel Session A - Living the Life
(Room C-301)

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3:00 PM "Motivation Theory in the Light of Scripture", Kenneth Reddington, Missionary, Gunma Ken., Japan

3:30 PM "A Sociological Analysis of the Gospel of Luke", Lowell Noble, Spring Arbor College, Spring Arbor, MI

4:00 PM "Coping Behavior of Ministers' Wives", Theodore T.Y. Hsieh and Edith Faulkner Rugg, Judson College, Elgin, IL

Parallel Session B--The Word and the World
(room C-302)

Chair: Anne Whiting, Houghton College, Houghton, NY

3:00 PM "Christian Colleges and Third World Agriculture", Martin L. Price, Educational Concerns and Health Organization, N. Fort Myers, FL

3:30 PM "A Model for Discussion of Science and Religion in the Public School", John W. Haas, Jr., Gordon College, Wenham, MA

4:00 PM "Science Education in Christian Schools", Henry J. Triezenberg, Christain Schools International, Grand Rapids, MI

4:45 PM Plenary Session--Special Lecture (Gezon Auditorium) "From Nazism Till Now: The Story of a Hebrew Christain", A. Kurt Weiss, University of Oklahoma, Oklahoma City, OK

5:45 PM Supper (Commons)

7:00 PM Interest Groups: Topics, locations and leaders to be announced

9:15 PM Movie: Creation/Evolution (Gezon Auditorium)

MONDAY, AUGUST 16

7:30 PM Breakfast (Commons)

8:30 PM Group Devotions (room C-301) Dan Andersen, Grand Valley State College, Allendale, MI

Parallel Session A--Philosophy and Science

Chair: Jerry Bergman, Spring Arbor College, Spring Arbor, MI

9:00 AM "Twentieth Century Philosophy and Christianity", Mary Carman Rose, Emeritus, Goucher College, Towson, MD

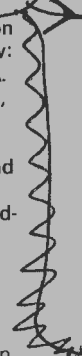
9:30 AM "Concordism in Early New England Geology", Edward B. Davis, Indiana University, Bloomington, IN

10:00 AM "A World is Not Made to Last Forever: The Bioethics of C.S. Lewis", Martin LaBar, Central Wesleyan College, Central, SC

10:30 AM Break

11:00 AM "The Mind-Body Problem: Scientific or Philosophic? Implications for Apolo-

MINHRAM
reschedule for 11:00 am Mon
in place of Scadding



- tics", Tom Burke, Hillsdale College, Hillsdale, MI
- 11:30 AM "Participatory Nature of Modern Science and Judaic-Christian Theism", W. Jim Neidhardt, New Jersey Institute of Technology, Newark, NJ
- 12:00 AM "Paradox: The Warp and Woof of Creation", C. Markham Berry, Emory University School of Medicine, Atlanta, GA

Parallel Session B--Creation/Evolution (room C-302)

Chair: Walter R. Hearn, New College, Berkeley, CA

- 9:00 AM "On the Nature of Fitness", Dave Wilcox, Eastern College
- 9:30 AM "Jumping Genes and Rates of Evolution", Charles Detwiler, The Stoney Brook School, Stoney Brook, NY
- 10:00 AM "A Comparison of Carbon 14 Dating with Historical Dating in the Second and Third Millenium B.C.", Mary Jane Mills, Galveston, TX
- 10:30 AM Break
- 11:00 AM "Do Vestigial Organs Provide Evidence for Evolution?", S.R. Scaddings, University of Guelph, Guelph, ONT
- 11:30 AM "History and Aims of the Creation Research Society", Wilbert H. Rusch Sr., Emeritus, Concordia College, Ann Arbor, MI
- 12:00 AM "The Relationship Between The American Scientific Affiliation and The Creation Research Society." H. Harold Hartzler, Mankato State University, Mankato, MN
- 12:45 PM Lunch (Commons)

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Parallel Session A--Mind/Brain, Progress and Problems (room C-301)

Chair: C. Markham Berry, Emory University, Atlanta, GA

- 2:00 PM "Relevance of Recent Advances in Brain Research to Christians", C. Daniel Geisler, University of Wisconsin, Madison, WI
- 2:30 PM "Why our Scientific Understanding of the Mind-Brain Problem is No Threat to Liberty", Danielle Mihram, Princeton University, Princeton, NJ and G. Arthur Mihram, Haverford, PA
- 3:00 PM Break
- 3:30 PM "The Logic of Insanity", Ian A. Kling, Muskegan, MI
- 4:00 PM "The Abuse of Psychotherapy: Biological, Economic and Biblical Perspectives", W.C. Johnson, Hanover, MA

TRIEZENBERG

Parallel Session B--Symposium (room C-302)

Chair: Robert L. Herrmann, Gordon

- 2:00 PM College, Wenham, MA
"Teaching Bioethics in the Christian College", Donald W. Munro, Houghton College
- 2:45 PM Respondent: Gordon Van Harn, Calvin College, Grand Rapids, MI
- 3:00 PM Respondent: Ross Shaw, Seattle-Pacific University, Seattle, WA
- 3:15 PM Break
- 3:45 PM Respondent: Frank Seydel, Friends University, Wichita, KS
- 4:00 PM Discussion

CONFERENCE COMMITTEES

- Workshop Chairperson, Donald W. Munro, Houghton College, Houghton, NY
- Annual Meeting Chairperson, Wayne Frair, The King's College, Briarcliff Manor, NY
Co-Chairpersons, Russell R. Camp, Gordon College, Wenham, MA; Donald W. Munro, Houghton College, Houghton, NY
- Local Arrangements Committee:
Chairperson, Dan Anderson, Grand Valley St. College, Allendale, MI
Registration, John VanZytfeld, Calvin College
Publicity, Enno Wolthuis, Calvin College
Field Trips, Bob Albers, Calvin College
Transportation, Herman Broene, Calvin College

Information about the American Scientific Affiliation can be obtained at the literature table at the meeting or by writing the National Office:

Robert L. Herrmann
American Scientific Affiliation
P.O. Box J
Ipswich, Massachusetts 01938

wants to change but I say keep as scheduled.



ABSTRACTS OF PAPERS TO BE PRESENTED
AT THE 1982 ANNUAL MEETING OF THE ASA
AUGUST 13-16

PARADOX: THE WARP AND WOOF OF CREATION
C. Markham Berry, Emory University School of Medicine,
Atlanta, GA 30342

This paper suggests that the primary mode of the creative process is by a peculiar confrontation of opposites. Logically this is by paradox. The principle is illustrated by the creation of Light and Darkness.

The primary effect of this method is to produce an elegant teaching instrument by which a principle is divided into two oppositional components and these are then interfaced. In this process the two divided elements are illuminated by their opposites, and the confluence takes on a marvellous complexity and breadth.

This learning, or epistemological method is then illustrated by the apposition of Time and Eternity, of Male and Female, and ultimately of Sin and Grace.

THE MIND-BODY PROBLEM: SCIENTIFIC OR PHILOSOPHIC?
IMPLICATIONS FOR APOLOGETICS
Tom Burke, Hillsdale College,
Hillsdale, MI

This paper analyzes the arguments for dualistic interactionism given by Karl Popper in The Self and Its Brain and those presented on behalf of the identity theory by D. M. Armstrong in A Materialist Theory of the Mind. It is concluded that none of the arguments put forth by the disputants are truly scientific in nature, despite the claims to the contrary, because both positions are compatible with all the evidence cited. The problem, therefore, is not scientific, but philosophic. The logic of this problem, it is then argued, is isomorphic with that of God's relationship to the world. Consequently, empirical events of whatever sort imaginable can have evidential value only in conjunction with a verbal message arising in a historical context relevantly preparatory to both the events and the accompanying message. It is concluded that strictly scientific evidence for theism is not possible, but belief still can and ought to be rationally warranted.

WHAT IS CREATION ABOUT?
Dewey K. Carpenter, Baton Rouge, LA

Although the Christian Doctrine of Creation does deal with the origins of matter and life, it is neither exclusively nor primarily concerned with these. The Doctrine is primarily one which deals with those relationships which exist between God, Man, and the World. In it is asserted the complete dependence of man and nature on God in all respects. These have to do with an abiding set of relationships as well as those new creative acts and situations introduced by God. Also asserted in the Doctrine are the following: the position of responsibility occupied by man, the purposes of God underlying the historical process, and the potential for the fulfillment by both man and nature of God's good will for his creatures.

These are all ideas which Christians understand in the light of God's revelation of his purposes and nature in Christ. Thus Creation is the Christian Doctrine. It involves distinctively theological ideas which are incapable of being studied or expressed by the methods or the vocabulary of science. The term "scientific creationism" should not be used by Christians for this reason. It draws undue attention to a peripheral aspect of the Doctrine, namely that of origins.

THE WORD AND THE WORKS: CONCORDISM IN EARLY NEW ENGLAND GEOLOGY
Edward B. Davis, Indiana University
Bloomington, IN 47405

In 1605, Sir Francis Bacon set forth for a new age the old doctrine of the "two books" or revelation, the Word of God and the works of God. His vision of science as a separate but harmonious enterprise from theology held sway in Britain and America until the end of the nineteenth century. Three leading New England geologists--Benjamin Silliman, James Dwight Dana, and Edward Hitchcock--managed their science wholly within the Baconian tradition, and thereby sought to reconcile the two records of the earth's past given by geology and by Scripture. Their successes were due, in no small part, to the flexibility of the concordist approach. Yet ultimately concordism proved unable to incorporate the full scheme of Darwinian evolution; Asa Gray, who endorsed both natural selection and orthodox theology, rejected the effort to harmonize his science and his theology, preferring instead to hold them in uneasy tension.

JUMPING GENES AND RATES OF EVOLUTION
Charles Detwiler, The Stony Brook School
Stony Brook, L. I., NY 11790

Sequences of DNA known as "transposable elements", "mutator genes", or "insertional sequences" have been studied extensively in viruses, bacteria, and higher organisms such as *Drosophila* and maize. These genetic elements are capable of jumping out of, or excising from their "original" position along the DNA sequence and inserting in numerous other sites within the genome. If the new site of insertion is within a functioning gene, a mutation is produced at the locus. Sometimes the result is a highly mutable locus which continues to mutate at the rate of two to three orders of magnitude about spontaneous levels. Biochemical sequence analysis of DNA segments has been performed on strains of dipterans which originated from the same laboratory stock but have been subsequently cultured in separate laboratories. The results indicate that within a very small region of the total genome, sequence heterogeneity already exists between the two cultures. Apparently, transposable elements or some equally effective agent can cause DNA sequences to diverge rapidly when reproductive isolation is in effect. When the neo-Darwinian synthesis was formulated, this type of mutation was neither known or assumed. Mutation rates in natural populations are probably significantly higher than was originally assumed. Implications for rates of speciation are discussed.

RELEVANCE OF RECENT ADVANCES IN BRAIN RESEARCH TO CHRISTIANS
C. Daniel Geisler, Madison, WI

Brain research is currently being carried out at many different levels. At the cellular level, it is now possible to study both the physiology and anatomy of a single nerve cell (neuron) by means of a thin tube whose tip impales the neuron. At the sub-cellular level, many mechanisms for varying the properties of a neuron, such as its permeability to various ions, have been discovered. At the multi-cell levels, it is being found that groups of neurons, particularly in cerebral cortex, participate in larger, columnar, shaped groups. These columns are grouped into still larger groups, etc., eventually leading to major divisions such as the cerebral hemispheres (which behave differently). Yet so much remains unknown. For example, there is essentially no idea, or even scientific approach, as to how brain processes result in conscious experience.

These findings are important for Christians on several grounds. First, the evidence continues to mount that the parts of any brain (including mammalian ones) obey physical laws. Yet, the rudimentariness of much of our knowledge prevents definitive scientific on such questions as the existence and character of free will or of a non-material soul. Nevertheless, these questions are being raised with increasing frequency and urgency, and points of Christian belief and understanding

regarding them need to be carefully thought out and clearly stated. Secondly, the fantastic complexity of the brain (more than 10^{11} neurons in some mammals) coupled with great orderliness and astonishing adaptability, should lead us all to feelings of great awe and thanksgiving to God for this most marvelous part of creation.

CREATIONISM AS SCIENCE OR RELIGION?
Dr. Norman L. Geisler, Dallas Theological Seminary
Dallas, TX, 75204

It is assumed (via the First Amendment) that the teaching of religion in public schools is unconstitutional. Thus this paper will examine the questions of whether creationism is science or religion. The nature, source and legitimacy of scientific models will be discussed and evaluated in order to answer this question.

A MODEL FOR DISCUSSION OF SCIENCE AND RELIGION IN THE PUBLIC SCHOOL
John W. Haas, Jr., Gordon College
Venham, MA 01984

The currently public and professional furor over the teaching of particular views on origins in public schools appears to offer an opportunity for evangelicals to deal with questions relating to science and religion both with students in the classroom and in teacher workshops. We have employed an approach in both contexts which begins with an historical sketch of the relation between science and Christianity. Here we suggest that modern science found its roots in an atmosphere favorable to Christianity and that many of the early scientists found their motivation and basic scientific presuppositions to be compatible with the Bible. We then trace the deterioration of the influence of Christianity and the rise to dominance of science in the 18th and 19th centuries down to the post World War II calls for help from the religious community to help develop an environmental ethic--making the point that there need not be a dichotomy between science and religion. We then argue the need to discuss science-religion issues where they appear in the classroom and suggest ways that teachers can provide a non-sectarian discussion. The background of major science-Christianity conflicts is sketched and suggestions made of how to deal with issues as they arise. The response to this approach before a variety of New England student and teacher groups has been very affirmative.

THE RELATIONSHIP BETWEEN THE AMERICAN SCIENTIFIC AFFILIATION AND THE
CREATION RESEARCH SOCIETY
H. Harold Hartzler, Mankato State University
Mankato, MN

At the present time there are two groups of scientists who are convinced Christians and interested in relating scientific conclusions with statements in the Bible. Members of both groups are scientifically trained men and women who have made a commitment to study the Bible as well as devote themselves to their various scientific disciplines.

The American Scientific Affiliation was organized by five men at the Moody Institute in Chicago in September 1941. The Creation Research Society, originally called "The Team of Ten", was formed in 1963 shortly after a joint meeting of the American Scientific Affiliation and the Evangelical Theological Society. All of these members were active Christians engaged in some scientific activity. A number of them were members of the American Scientific Affiliation.

The primary purpose of the Creation Research Society is to study the problem of origins, while the emphasis of the American Scientific Affiliation is much broader involving all relations between science and Christianity.

Each organization has a doctrinal statement required of all members. This involves belief in the Bible as the inspired Word of God and in Jesus Christ as Lord and savior. The statement of CRS is much more detailed than that of the ASA and involves the factual presentation of origins as given in Genesis.

The purpose of this paper is to show that both the ASA and the CRS agree in many areas and therefore should be able to work together on a number of joint projects. It will also point out some of the major areas of differences. It is the hope of the author that we may have a combined witness to the world which desperately needs a savior, who is the Lord Jesus Christ.

The ASA is governed by an Executive Council of five members and hires an Executive Director. Annual meeting for the presentation of papers have been held every year beginning in 1946. The CRS has a Board of Directors of 18 members which meets annually. No other meetings are held. A small number hold membership and participate in both organizations. In the opinion of the author, this number should be increased.

COPING BEHAVIOR OF MINISTERS' WIVES

Theodore T.Y. Hsieh, Judson College, Elgin, IL 60120
and Edith Faulkner Rugg, Algonquin, IL 60120

Family coping Inventory was administered to a group of ministers' wives representing two evangelical denominations. Among the 91 activities on the inventory, thirteen were identified as most helpful coping strategies by more than 50% of the wives and 26 were identified as not helpful. These results were compared with the findings in the literature of Family Stress. Some suggestions were made for future studies concerning ministers' wives.

THE ABUSE OF PSYCHOTHERAPY: BIOLOGICAL, ECONOMIC AND BIBLICAL PERSPECTIVE

W. C. Johnson, Hanover, MA 02339

Considerable publicity has been given to the abuse of minor tranquilizers such as librium and valium and to the abuse of electric convulsive therapy, but to my knowledge, little attention has been paid to the abuse of psychotherapy.

Psychotherapy is being employed even today as the sole modality of treatment by some mental health professionals with little or no positive benefit in patients who are suffering from such conditions as endogenous depressions, phobic anxiety, and panic attacks which are relieved quickly and effectively by anti-depressant drugs. Approximately 95% of depressed patients can be helped by biological methods of treatment and in a recent study, it was noted that 89% of patients suffering from phobic anxiety were benefited by imipramine and 94% by the monoamine oxidase inhibitor pherelzine.

In these days of monetary inflation it is most important that morbidity and consequent loss of work days resulting from mental illness be reduced to the minimum by rapidly effective methods of treatment rather than by slow expensive and time-consuming therapeutic programs. Health insurance policies such as Blue Cross/Blue Shield set a limit to the amount of money which they will pay per year for out-patient or office psychotherapy--a limit which would be exceeded within a few weeks for individuals undergoing intensive and frequent psychotherapy sessions.

In the spiritual realm, psychotherapy may be abused in two directions: first by the counsellor or therapist attributing all the patient's emotional symptoms to a sinful life pattern, thereby denying and ignoring biological and psychological factors in the genesis of mental illness. Such a therapist would eschew biological and psychological methods of treatment and would rely solely on spiritual counselling, sometimes with disastrous results.

Occasionally, humanistic and atheistic psychotherapists have sought to undermine the faith of Christian patients in the therapy sessions: such flagrant abuse should be counteracted vigorously and with determined resolution.

THE LOGIC OF INSANITY

Ian A. Kling, Muskegon, MI 49442

Both the tradition of Western science and the tradition of Christian faith are associated with standards of belief and practice. Deviations from these norms can variously be described as ignorance, irrationality, heresy, incompetence, and insanity.

This paper will examine current practices of professionally certifying deviation from societal expectations of psychological sanity. This should serve as a helpful model of how Christian professionals can sensitively monitor standards for conformity and deviance.

Insanity is a secular concept defined in a court of law. The determination of mental illness is structured through an intricate process of legal reality-testing that includes a petitioner, a certifying psychiatrist, and an adversarial court hearing. The psychiatrist is expected to report sociologic criteria of deviance such as dangerousness to self and other, or inability to care for self. In addition the psychiatrist must attest to the existence of mental illness, which distinguishes the individual's deviance from that of criminality or poverty. Syndromes of mental illness presented in court include paranoid delusions, bizarre physical beliefs, catatonic muteness and delusions of grandeur.

The presentation will include time for discussion so that there can be elaboration of the concepts of psychiatry in a manner relevant to the scientific disciplines present.

A WORLD IS NOT MADE TO LAST FOREVER THE BIOETHICS OF C.S. LEWIS

Martin LaBar, Central Wesleyan College
Central, SC 29630

C. S. Lewis was not an expert in bioethics. Nonetheless, he had a philosophical background, and his writings have been influential. I intend to explore his attitudes toward personhood, toward the rights of persons, toward population control, and toward nature as a whole, using primarily fiction, but also his other works.

The fiction of Lewis explores the possibility that non-humans can have personal rights, in the Narnia books, and especially in Out of the Silent Planet, where he uses the fictional concept of Hnau. Lewis seemed to have been opposed to population control by any means. His overall perspective of the temporary nature of individuals, species, and even worlds, made him relatively unconcerned about temporary things. One of his characters, almost surely speaking for him, said "A world is not made to last forever."

WHY OUR SCIENTIFIC UNDERSTANDING OF THE MIND-BRAIN PROBLEM IS NO THREAT TO LIBERTY

Danielle Mihram, Princeton University, Princeton, NJ 08544
G. Arthur Mihram, Haverford, PA 19041

D. Gareth Jones's paper, "The Relationship Between the Mind and the Brain"[J. Amer. Sci. Affil. 33: 193-202 (1981)], presents the conclusion that a complete scientific understanding of the mind--as a particular, physical subset of the neurons of the brain--would be an 'ominous' threat because, it seems to be contended, such an understanding would 'destroy' human freedom.

The present paper counters this argument by noting some of the most important recent research regarding the physical location of the mind and its operation within the brain, particularly in our human species:

(A) Nobel Laureate Hugel's work with the feline brain's neurons, particularly those responsible for transmitting and initially processing the sensual impressions from the eye into the brain, reveals that the newborn cat has indeed neurons which are not only genetically predisposed to handle signals from one eye but also capable (in one-eyed kittens, e.g.) of adapting to transmit/process signals from the other;

(B) physiologist Guyton has noted that the physical location of the portion of the brain "responsible" for an individual human's moral behaviour/conduct is in the fore-brain; and,

(C) the book, An Epistle to Dr. Benjamin Franklin [Exposition-University Press, 1975 (1974)], has revealed that our neural process for building mental models of the world outside our individual bodies is merely the same six-stage model-building process which has been used by both plants and animals (via genetic models) for their respective species' survival [See also American Scientist 67: 394 (1979)].

The conclusion, that the mind : the brain :: the archivist : the library, underscores the pertinence of the distinction between 'liberty' and 'freedom', a distinction perhaps not apparent to Gareth Jones (and others). A 'translation' of the entry in the Oxford English Dictionary would provide the formula,

LIBERTY = FREEDOM + RESPONSIBILITY,

revealing that the imminent scientific resolution of the "mind-brain problem" carries no threat at all to the responsible Christian.

A COMPARISON OF CARBON 14 DATING WITH HISTORICAL DATING IN THE SECOND AND THIRD MILLENIUM B.C.

Mary Jane Mills, Galveston, TX 77550

Although calibrated ¹⁴C dates and historical dates tally well in the Third Millennium B.C., in the Second Millennium they do not conform at all happily, whether Egyptian or Aegean samples are used." The dates in the first Millennium are well established, but about 1000 B.C. both Egyptian and Mesopotamian cultures were in an intermediate period and Second and Third Millennium dates are based on other dating methods. Much of the historical dating in the ancient world has been tied to the Egyptian chronology and Egyptian dates are based on king lists and rising of the Sirius star. There has been continuous disagreement between radiocarbon dates and the dates that are calculated by historical methods. Before the tree-ring calibration, most of the radiocarbon dates were too young when compared to the historical dates, but now with the calibration, the ¹⁴C dates become too old. There have also been many problems in regard to the suitability of samples taken and hence the reliability of the radiocarbon results. Surprisingly, with more recent analyses using improved methods, the discrepancies did not disappear. Various attempts have been made to modify the historical dates so that they agree more closely with the calibrated radiocarbon dates. Others have excluded the radiocarbon dates and still adhere to the historical dates, and some have selected for use only dates that agree with presently accepted historical dates.

If the assumptions on which the calibrated radiocarbon dating is based are valid, and they appear to be within reasonable experimental error, then revisions need to be made in the historical dates of the Second and Third Millennium. This dating would obviously affect the dates for some of the events in the Old Testament, for example, the date of the Exodus or the events described in the Book of Judges.

THE PARTICIPATORY NATURE OF MODERN SCIENCE AND JUDAIC-CHRISTIAN THEISM W. Jim Neidhardt, New Jersey Institute of Technology Newark, NJ 07102

Descartes and Galileo were instrumental in starting modern science by their commitment to a method of investigation in which the detached observer first observes and then manipulates physical reality. This paradigm of detachment has been the model for scientific objectivity despite its inability to function well when applied to the social sciences and the fact that the creative researcher in the physical sciences often ignores its rules by allowing himself (or herself) to be guided by non-detached intellectual passions; that is personal and community (scientific) standards of rational beauty, unity, and simplicity. But recent developments in the philosophy of science, quantum physics, and cosmology have greatly weakened the validity of this paradigm for the scientist is now believed to always be an active participator with the universe; indeed, human consciousness may even be a necessary condition for our universe's existence. This newly emerging paradigm of active participation has a number of striking implications for and resonances with Judaic-Christian theism. These implications and resonances are explored.

A SOCIOLOGICAL ANALYSIS OF THE GOSPEL OF LUKE

Lowell Noble, Spring Arbor College
Spring Arbor, MI 49283

Key sociological concepts such as power, authority, class (rich and poor), racism or ethnocentrism, social order, social conflict, social activism, and status are vividly illustrated in Jesus' ministry in the gospel of Luke.

The temptations of Jesus Christ focus on spiritual power and its potential misuse or abuse. The proper use of power is given in Luke 4:18--to help the poor and oppressed.

As the Jewish religious leaders examine and challenge Jesus, the issue of authority becomes dominant. Continuing confrontation occurs. Near the end of his ministry, Jesus occupies the temple daily to teach. The temple represents the religio-politico-economic base of power and authority for the Jewish religious leaders.

Jesus does not fully support the existing social order. At times He deliberately introduces social conflict to bring about social change. Jesus Christ was an aggressive social activist.

CHRISTIAN COLLEGE: RESOURCE CENTERS FOR THE SMALL FARMER IN THE THIRD WORLD?

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A number of Christian college have programs to encourage a global perspective on campus while involving their students directly in third world problems. Often the main leadership for this comes from the social sciences departments (for which we are grateful). If science students and faculty are involved, it is usually in a way not especially relating to their particular academic disciplines.

There are many research needs related to small-scale agriculture in the third world which are not being addressed by the primary agricultural research centers. The latter tend to emphasize larger-scale commercial farming. ECHO is interested in helping faculty and students in the sciences identify specific problems which can serve as a starting point to bring their academic disciplines, laboratories and libraries to bear on world hunger. A few specific examples will be given.

MOTIVATION THEORY IN THE LIGHT OF SCRIPTURE
Kenneth Reddington, Gunma Ken, Japan

God is concerned about people's motives - Proverbs 16:2

Scripture presents what appears to be an 'all-inclusive' motivation theory in I John 2:16. People are motivated to (1) do, (2) have, and (3) be. People seek experiences, seek to possess things, and seek to be something.*

(* "Pride of life" in I John 2:16 can be translated "arrogant assumption." This seems to be the point where Lucifer fell - Ezekiel 28. It is pride in what I am, as well as in what I can do. Humans seek education, fame, position and titles.)

This 3-fold motivation is illustrated in the temptations of Eve (Genesis 3:5-7) and Jesus (Matthew 4:1-11). This motive of 'self-gain' (to do, have, be) is a temptation only when fulfillment is sought outside the will of God. Jesus acted from these same motives: to do in John 6:38, to have in John 17:6,24, and to be in John 8:46,58; 13:13. Jesus also appeals to these same motives in us. All three are illustrated in Ecclesiastes and in Timothy 3:2-4.

Scripture also presents approval-seeking as a basic motive in John 12:42-43. Whether this is a distinctly different motive from self-gain, or whether gaining approval of men is an instrumental value, is not clear. Approval-seeking is a temptation when fulfillment is sought outside the will of God - Galatians 1:10. Approval should be sought first from God and His approval should take precedence over all human approval - II Corinthians 5.

How do these Bible teachings fit in with current psychological theory? One example is Maslow's Hierarchy of Needs. II Kings 6:28-29 strongly supports the theory behind this hierarchy. Maslow's lowest levels of need are physical and safety needs, and fit the motive 'to do.' (Here Scripture also supports traditional pleasure-pain psychology.) Maslow's higher levels of belongingness, love, self-esteem and self-actualization needs fit well the motive 'to be.' This hierarchy does not seem to include the motive 'to have,' but human experience does attest to this motive.

Maslow's belongingness and love needs seem to fit approval-seeking well. My own research with Japanese demonstrates that 'self-esteem' and 'self-concept' are antecedents of human behavior. These manifest the need 'to be.'

TWENTIETH CENTURY PHILOSOPHY AND CHRISTIANITY
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My thesis is that there is need for Christians to be aware of the relations between Christianity, on the one hand, and the several dominant views of man, reality, truth, and truth-seeking, on the other. This is especially important in respect to the relations at the present time between philosophy and science, for most of the philosophical views which are used to work out revisions of Christianity are either based in science or (as in the case of the revision of Christianity in terms of some variety of Eastern thought) grow out of a misunderstanding of Western science. After pointing out that there are four possible relations between Christianity and philosophy (i.e., independence, subservience, dominance, or cooperation or philosophy in respect to Christianity) I show how at present there is only dominance of philosophy over Christianity. By dominance in this situation I mean the desire to revise traditional Christian beliefs in terms of a particular philosophical view without sufficient attention to the de facto content and existential import of Christian beliefs. I argue that there is needed a development of the relation of cooperation between Christianity and philosophy and that such a relation would benefit both. In order to show this I work out those beliefs which I argue are essential to Christianity and mark it as distinct among the

world religions. Then I analyze these beliefs metaphysically, axiologically, and epistemologically. I show how all of these central aspects of Christianity have been challenged by present day philosophy, but how, on the other hand, these challenges are worth answering. I stress the aspects of philosophy which could develop (linguistic, epistemological, metaphysical, and ontological) if Christian philosophers were to undertake this important work. I also point out the advantages to Christians in the doing of this work. This last illustrates what I mean by the cooperation between philosophy and Christianity.

HISTORY AND AIMS OF THE CREATION RESEARCH SOCIETY
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The Creation Research Society was organized in 1963 as an independent corporation whose primary purpose was publication. The society is governed by an 18-member board of scientists and has grown from an original ten to over 700 voting members. All memberships plus subscriptions total more than 2,500.

In addition to publishing a quarterly, the society has produced anthologies, biology textbook and laboratory material, and monographs. It distributes selected works through C.R.S. books and has an employment bureau. The society facilitates field and laboratory research and plans to construct a research station.

DO 'VESTIGIAL ORGANS' PROVIDE EVIDENCE FOR EVOLUTION?
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The existence of functionless 'vestigial organs' was presented by Darwin, and is often cited by current biology textbooks, as part of the evidence for evolution. This paper examines the origin and nature of this argument tracing it to the works of Darwin, Haeckel, and particularly Wiedersheim. An analysis of the difficulties in unambiguously identifying functionless structures and an analysis of the nature of the argument, leads to the conclusion that 'vestigial organs' provide no evidence for evolutionary theory.

CREATION, MIRACLES, AND NATURE:
SPECULATIONS AT THE INTERFACE BETWEEN SCIENCE AND THEOLOGY
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The new birth is not a miracle: it is a natural event. Miracles are (1) notable natural events whose special timing glorifies God, (2) natural events produced by means that run counter to normal means, (3) creative transformations which introduce totally new features into something existent, or (4) an absolute beginning. This last type, so far as we can tell, occurred only once, when God created the universe. The third type, according to a strict reading of the first chapters of Genesis, occurred two times: to produce fish and fowl, and to produce man. In both cases, new features were added to previously produced material. These new features were then transmitted by natural generation, a process that allows for variation with the passage of time. A creative change of similar type, altering fallen human life into spiritual life, began with God transforming human life by becoming human Himself. The new life thus produced now propagates naturally according to the divinely established pattern.

SIX DAYS, SIX AGES, OR . . . ?
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If we are given the sequence God used to explain His activity, it follows that the technique and sequence of His production of all things cannot be determined from the first chapters of Genesis. The Scripture is equally compatible with the instantaneous appearance of everything

in completed form or with the Creator's use of ages beyond human comprehension to bring the world to its present state. But it seems most difficult to fit the express statements of Scripture into the popular six day or six age views. Indeed, rather surprisingly, a strict regard for the inspired text seems to turn the original questions around: If God had intended to teach six-day creationism, why did He inspire the second chapter of Genesis? How else, short of inserting an explicit disclaimer, could He have made it clearer that Genesis 1 is not to be understood as the creative sequence?

SCIENCE EDUCATION IN CHRISTIAN SCHOOLS
Henry J. Triezenberg, Grand Rapids, MI

"For since the creation of the world God's invisible qualities...have been clearly seen, being understood from what has been made...."(Romans 1:20, NIV)

Students in Christian schools should learn science primarily from what has been made and secondarily from authorities in science, be they persons or textbooks and other media that people have developed. With the physical-biological world as the main source of learning, students can perceive God's orderliness, power, and providence. They can understand that He operates consistently, not capriciously, and that scientific explanations have limited potential.

Students can respond with their whole beings, with academic understanding, personal and social decisions, and creative skill and imagination. Evaluation becomes more than objective. There is opportunity for growth K-12. And the classroom becomes a learning community.

With these criteria, current textbooks for Christian schools will be compared. The implications of the criteria will be explored. Time will be reserved for discussion of both the criteria and the implications for curriculum design.

OBJECTS AND PROJECTIONS: A METAPHOR TO ILLUSTRATE COMPLEMENTARITY
Howard J. Van Till, Calvin College
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What is the Sun? Several answers could be offered in response to this question. One of several answers drawn from the Scriptures might be: The Sun is the greater light created by God to rule the day. One of several answers drawn from modern astrophysics might be: The Sun is a main-sequence star formed by the gravitational collapse of a gaseous nebula. How are two such divergent answers related? D. M. Mackay and others have discussed the fruitfulness of treating these as "complementary" descriptions--views or descriptions of an object as seen from different standpoints. One metaphor which can be used to illustrate how complementary descriptions are related is the "projection" metaphor. In this paper I shall explore the usefulness of extending this metaphor into a geometrical model of three-dimensional objects and their two-dimensional projections. Such a model may provide a useful teaching device to illustrate the relationship among various descriptions of any particular entity as well as the relationship between the entity itself and any one description of it.

LIVING THINGS AS OBEDIENT SYSTEMS
Dave Wilcox, Eastern College

I suggest the following viewpoint as a foundation from which to work in Biology. Living things are continuously structured and held in existence by the sustaining Word of Christ's Power. Their most unique characteristic is the ability to cause local increases in order, i.e., negentropy. Hence, 'Life', which is a mode of obedience to divine law, is the maintaining and increasing of order (complexity, negentropy). 'Life' is shown by certain energetically open, programmed, discrete macromolecular systems. Such systems maintain an integrated and adaptive homeostasis; and they reproduce, making nuclear systems with

the same programming. Such systems must also contain a set of subsystems designed to accomplish specific parts of their task.

ON THE NATURE OF FITNESS
Dave Wilcox, Eastern College

Questions of the validity of concepts of "fitness" as scientific theories have been raised on the ground that the "survival of the fittest" is a tautology. This represents a misconception of the theory base of population biology. Fitness is a quantifiable variable of natural populations generated by the interaction of a population with its environment. Concepts such as "r", "k", "s", "h", "t", "b", "d", or "alpha" selection represent ways in which that interaction might change if the population's genetic and physiological potentials are modified.

THE GENETICS OF SIN
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Biblical exposition on matters which can be applied to the genetics of sin are derived to a large extent from Paul. To him, sin pertains to man (ἄνθρωπος), a Greek term used of humans in contrast to animals or spiritual entities. The word gives "special emphasis to the transitoriness and sinfulness of human nature as subject to physical weakness." (Jeremias) Sin entered in (εἰσέρχεται) through one man (ἄνθρωπος) and through sin, death. As a result, sin spread or penetrated through (διασπέρχεται) unto all men because all men because all have sinned. Death reigned from Adam to Moses apart from the law. (Rom. 5:12-14).

Two possible biological explanations are the following (given in simplistic terms and based upon Paul's literalness, which can be broadened if necessary): (A) Adams's genes which were dominant became tainted. Excluding woman, this would explain the virgin birth and the impeccability of Christ. This is more in keeping with concepts bantered about by the Greeks, and as such was a part of the culture and the Sitz im Leben in which Paul ministered.

(B) Both racial parents became tainted with sin and thus passed it on to their progeny. There may have been involved in this process some sort of mutation from which has resulted the genetic physical disorders as well as the moral and spiritual aberrations now inflicting the human race. Their genes would be homozygous recessive (therefore dominant). When Mary was impregnated, the recessive gene from the father was lacking in her conception by the Holy Spirit. Thus the impeccability of Christ was assured, though he was a true man.(Heb. 4:15).

The removal of this universal condition of mankind begins spiritually at the new birth, but the physical and certain moral and spiritual aspects await the resurrection. We shall all be changed (ἀλλαγούμεθα). Corruption shall be clothed in incorruption and death in immortality. This calls for Christian steadfastness.(I Cor. 15:53-58).