

11:00 AM "Men, Animals, and Machines; Toward a New Definition of Human," *Robert John Schier, Jr., Biology, Irvine, California*

11:25 AM "Competition: Who Needs It?" *Leo Setian, Electrical Engineering, John Brown U., Siloam Springs, Arkansas*

12:15-12:45 PM Lunch

1:30 PM Final Plenary Session (Jordan 040)

Address — "Is the Road from Freedom to Responsibility a One Way Street?" *Richard H. Bube, Stanford University*

General discussion of key-note addresses and conference theme

3:00 PM Break

#### **Simultaneous Session G — Glimpses of the Future** (Jordan 040)

3:30 PM "The Future is Up for Grabs," *Fred Jappe, Chemistry, Mesa College, San Diego, California*

3:55 PM "Solar Conversion: A College Greenhouse," *Marvin W. Meyer, Biology, Eastern College, St. Davids, Pennsylvania*

4:20 PM "Ocean Wave Energy: An Untapped Resource," *Wilson R. Turner, Electrical Engineer, Kailua Kona, Hawaii*

4:45 PM "The Earth's Only Source of Energy," *Adrian V. Clark, Physics, Toney, Alabama*

#### **Simultaneous Session H — Lessons from the Past** (Jordan 041)

3:30 PM "Psychology, Mysticism, and the Christian Experience," *Russell A. Elkins, Graduate Student in Psychology, Emory University, Atlanta, Georgia*

3:55 PM "John Ruskin's Laws of Composition for the Inductive Quest: Seeing Structure as the Clue to Function in Bible Study," *Paul M. McKowen, Minister, Irvington Presbyterian Church, Fremont, California*

4:20 PM "Population Control in the Classical Age," *Mary Jane Mills, Galveston, Texas*

4:45 PM "Impact Today of Ancient and New Testament Concepts of Energy," *Edmund R. Woodside, Editing and Writing Research, Pasadena, California*

6:00-6:30 PM Supper

#### **Simultaneous Session I — Science and Belief** (Jordan 040)

7:00 PM "The Marriage of Science and Religion," *Brooks Alexander, Spiritual Counterfeits Project, Berkeley, California*

7:25 PM "A Christian View of Parapsychology," *Mark Albrecht, Spiritual Counterfeits Project, Berkeley, California*

7:50 PM "Quantum Physics and Psychic Phenomena," *Robert L. Shacklett, Physics, California State U., Fresno, California*

8:15 PM "Bases of Belief: Culture, Science, and Revelation," *R. Clyde McCone, Anthropology, California State University, Long Beach, California*

#### **Simultaneous Session J — Christians as Scientists** (Jordan 041)

7:00 PM "Presenting a Christian Witness on a Secular Graduate Campus," *A. Kurt Weiss, Physiology, U. of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma*

7:25 PM "A Cooperative Program Between the University of Alabama in Birmingham and the University of Chiapas, Mexico," *Donald L. Grigsby, Education, U. of Alabama, Birmingham, Alabama*

7:50 PM "Public Opinion of Science," *Allen M. Nishimura, Chemistry, Wichita State U., Wichita, Kansas*

8:15 PM "Related Organizations," *H. Harold Hartzler, Physics, Mankato, Minnesota*

8:40 "Does Belief in Special Creation Inhibit Scientific Investigation? An Answer from the History of Science," *Marvin L. Lubenow, Fort Collins, Colorado*

## *Official Program*

### THIRTY-FOURTH ANNUAL MEETING

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.

**August 10-13, 1979**

8 June '79  
Information about the American Scientific Affiliation can be obtained at the literature table at the meeting or by writing the National Office at:

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STANFORD UNIVERSITY  
Stanford, California

**FINAL PROGRAM — ANNUAL MEETING OF THE  
AMERICAN SCIENTIFIC AFFILIATION**

**MEETING THEME: CHOICES WE FACE**

**FRIDAY, AUGUST 10**

4:00-6:00 PM Registration (Serra Lounge in Stern Hall)

6:00-6:30 PM Supper

7:30 PM Opening Session (Jordan 040)

Chairman — *A. Kurt Weiss, President of ASA*

Welcome — *Roy Gritter, Chairman, San Francisco Bay Local Section*

Announcements — *William Sisterson, Executive Secretary, ASA*

Introduction — *Walter R. Hearn, Chairman, Annual Meeting Program Committee*

Opening Address: "How Simple Life Would Be If Only Things Weren't So Complicated," *Richard H. Bube, Stanford University*

**SATURDAY, AUGUST 11**

7:30-8:15 AM Breakfast

8:30 AM Group Devotions — *Lynn Boliek, Pastor, First Presbyterian Church, Burlingame, California (Jordan 040)*

**Plenary Session A — Energy: the Nuclear Option**  
(Jordan 040)

9:00 AM "Nukes or No Nukes? That is the Question," *David L. Willis, Radiation Biology, Oregon State University, Corvallis, Oregon*

9:30 AM "Nuclear Safety from a Nuclear Engineer's Perspective: Case Studies," *Joel W. Cannon, Nuclear Engineer, Aerojet Nuclear Company, Idaho Falls, Idaho*

10:00 AM "Ethics and Nuclear Energy," *Robert Wilson, Nuclear Engineer, Allied Chemical Corporation, Idaho Falls, Idaho*

10:30 AM Break

11:00 AM "Scientific, Technical, and Nontechnical Issues in the Nuclear Energy Option," *David L. Dye, Physicist, Boeing Aerospace Company, Bellevue, Washington*

11:30 AM "Nuclear or Coal," *Vernon J. Ehlers, Physics, Calvin College, Grand Rapids, Michigan*

12:15-12:45 PM Lunch

**Plenary Session B — Energy: Decision Making**  
(Jordan 040)

1:30 PM "The Clamshell Alliance View of Nuclear Energy," *Kenneth A. Martin, Chemistry, Gordon College, Wenham, Massachusetts*

2:00 PM "Energy Production and Mineral Resources: A Christian Perspective," *Jack C. Swearingen, Materials Science Division, Livermore Labs, Livermore, California*

2:30 PM "A Christian Approach to Risk," *Charles A. Givler, Civil Engineering, Lafayette College, Easton, Pennsylvania*

3:00 PM Break

3:30 PM "Energy, Ethics, and Politics," *Stanley W. Moore, Political Science, Pepperdine University, Malibu, California*

4:00 PM "Energy Addiction" (Tape-slide presentation), *Theodore R. Malloch, Political Science, Gordon College, Wenham, Massachusetts*

**ANNUAL BANQUET**

(Florence Moore Residence)

6:30 PM Dinner

7:30 PM Address: "Tension in Theology: Creation vs Redemption," *Richard H. Bube, Stanford University*

**SUNDAY, AUGUST 12**

7:30-8:30 AM Breakfast

9:00 AM Group Devotions — *Virginia Johnson, Mathematics, Diablo Valley College, California (Jordan 040)*

10:00 AM Participation in local churches  
(No lunch served in dorms)

**Simultaneous Session C — Helping the Third World**  
(Jordan 040)

1:30 PM "Decentralized Application of Solar Energy to Developing Countries: A New Door of Opportunity for the Christian," *Kenell J. Touryan, Physics & Engineering Science, Solar Energy Research Institute, Golden, Colorado*

1:55 PM "Fish for Food for East Africans," *Wayne Linn, Biology, Southern Oregon State College, Ashland, Oregon*

2:20 PM "Rethinking Overseas Employment: Opportunities for ASA Members," *Stanley E. Anderson, Chemistry, Westmont College, Santa Barbara, California*

2:45 PM "Third World Development Programs: The Importance of Value Systems," *Claude E. Stipe, Anthropology, Marquette University, Milwaukee, Wisconsin*

**Simultaneous Session D — Creation and Evolution**  
(Jordan 041)

1:30 PM "Mythological Features and the Polemic Nature of Genesis 1:1 - 2:4a," *Reid J. Turner, Student, Bethel College, St. Paul, Minnesota*

1:55 PM "Addressing the Evolution/Creation Controversy in a Political Arena," *Vernon L. Grose, System Engineering, Tustin Institute of Technology, Canoga Park, California*

2:20 PM "Variation of Levels of Phosphate Esters in Red Blood Cells of Various Animal Species," *Gordon C. Mills, Biochemistry, U. of Texas Medical Branch, Galveston, Texas*

2:45 PM "Significant Fossil Discoveries Since 1958: Creationism Confirmed," *Marvin L. Lubenow, Fort Collins, Colorado*

3:10 PM Break

3:40 PM ASA National Business Meeting (Jordan 040)

4:30 PM Special Public Session (Jordan 040)

Presidential Address — "The Weisses Who Escaped the Holocaust: Grace That Is Greater Than All Our Sins," *A. Kurt Weiss, President of ASA*

6:00-6:30 PM Supper

7:30 PM Interest Groups

**MONDAY, AUGUST 13**

7:30-8:30 AM Breakfast

8:45 AM Group Devotions — *Chi-Hang Lee, R.J.R. Foods, Winston-Salem, North Carolina (Jordan 040)*

9:15 AM Meeting of President's Cabinet

**Simultaneous Session E — The Psychology Boom**  
(Jordan 040)

9:15 AM "A Biblical Basis for Counseling," *Robert Young, Counselor, Covenant Church, San Francisco, California*

9:40 AM "The Neurotic Christian: Ecclesiogenic Neurosis," *Paul D. Young, Graduate Student in Psychology, University of Alberta, Edmonton, Alberta, Canada*

10:05 AM "The Role of Demonic Factors in Mental Health," *Rodger K. Bufford, Psychology, Psychological Studies Institute, Atlanta, Georgia*

10:30 AM Break

11:00 AM "The Psychology Boom: Noises from a Sociological Voice Crying in the Wilderness," *Jack Balswick, Sociology, U. of Georgia, Athens, Georgia*

11:25 AM "Psychological Research, Common Sense, and Personal Growth," *Dennis R. Ridley, Psychology, Houghton College, Houghton, New York*

**Simultaneous Session F — Well-Being: Physical and Spiritual**

(Jordan 041)

9:15 AM "Biblical Ethics and Environmental Health Standards," *David L. Swift, Environmental Health Services, Johns Hopkins School of Hygiene & Public Health, Baltimore, Maryland*

9:40 AM "Practical Preventive Medicine," *Jay Hollman, Physician, Grady Memorial Hospital, Atlanta, Georgia*

10:05 AM "Spiritual and Psychological Well-Being: Tentative Theoretical and Empirical Implications," *Calvin H. Farnham, Director, Needs-Resources Center for Future Studies, Berkeley, California*

10:30 AM Break

"ABSTRACTS OF PAPERS TO BE PRESENTED  
AT THE 1979 ANNUAL MEETING OF THE ASA  
AUGUST 10 - 13, 1979"

RETHINKING OVERSEAS EMPLOYMENT: OPPORTUNITIES FOR ASA MEMBERS  
Stanley E. Anderson, Westmont College, Santa Barbara, CA 93108

Westerners employed abroad in developing nations by international agencies, foreign governments, multinational corporations and educational institutions are nothing new. Several million Americans alone, including many evangelical Christians, are working overseas right now in many different capacities. The question we perhaps should face as an organization of Christian professional people is how individually and collectively we might approach these opportunities and perhaps even involve ourselves in creative ways so as to (1) have clearly in mind Christian perspectives which would maximize the benefits of either short-term or long-term employment to the country, (2) help members in the "exit-re-entry" problems inherent in employment abroad, and (3) expedite the spread of the Gospel in countries where its progress has been slow or nonexistent in the past.

My perspective on these issues will be based on experience teaching chemistry in an Iranian university for four years and on a subsequent interest in international chemical education. I would like to discuss some of the possibilities and problems of overseas employment, and how Christian professionals working together might be able to make much more impact collectively than individually.

THE PSYCHOLOGICAL BOOM: NOISES FROM A SOCIOLOGICAL VOICE CRYING  
IN THE WILDERNESS

Jack Balswick, University of Georgia, Athens, GA 30602

If Freud were alive today he would find the "future of an illusion" (religion) to be more receptive of him than he was of it. Psychology is "in" within the evangelical community, as witnessed by the flood of psychologically oriented evangelical books available to the lay public. At many theological seminaries the psychological counseling program has become the fastest growing, both in terms of new courses and faculty added, and in popularity with students. A casual thumbing through any one of a number of Christian periodicals will reveal a multitude of psychologically oriented advertisements announcing seminars and workshops which will bring attenders increased psychological and spiritual wholeness.

The purpose of this paper is to try to explain the reasons behind this psychological boom and to discuss ensuing implications. An explanation is sought in examining the modernist-fundamentalist controversy at the beginning of this century and the manner in which "fundamental enlightenment" has led to present day evangelicalism. Briefly stated, the thesis of the paper is that, in continuing to stress the personal over the social application of the gospel, evangelicalism is opting for psychological explanations, while neglecting sociological explanations.

The implications of this thesis is that evangelicalism, in seeking individual rather than social solutions to problems, may be directing its concern more towards treating symptoms than problems. Further, it may mean that evangelical churches and denominations will neglect insights which sociologists can provide in understanding society in general, and church social structures, subcultural normative systems, value inconsistencies, and the like in specific.

## THE ROLE OF DEMONIC FACTORS IN MENTAL HEALTH

Rodger K. Bufford, Psychological Studies Institute, Atlanta, GA

In the past few years a number of factors, including the rise of the charismatic movement, have contributed to an increasing interest in the role of demonic influences in a variety of antisocial and troublesome human behaviors; paralleling this is an increased emphasis on the rites of exorcism and deliverance as a means of treatment. The nature of mental illness and demon possession are discussed; they are argued to be conceptually distinct, but to overlap in their behavioral manifestations. Clear differential diagnosis is thus likely to be difficult. At a practical level, evidence is presented which suggests that effective treatment does not require a clear distinction between mental illness and demonic influence. In addition to their similarity in behavioral manifestations, much overlap exists in the preferred approaches to dealing with both problems.

## REACTOR SAFETY: A NUCLEAR ENGINEER'S PERSPECTIVE

Joel Cannon, Aerojet Nuclear Company, Idaho Falls, ID 83401

This paper examines recent nuclear incidents. It presents first, the facts of each incident, and second, an interpretation of its significance to the nuclear safety debate. The crucial questions regarding the incidents are:

- 1) What adverse consequences would have resulted from additional system failures and/or human errors?
- 2) How likely were those additional failures and/or errors?
- 3) What information may be gained concerning the likelihood and probable consequences of future events?

These are qualitatively discussed. The paper concludes that while the incidents were potentially dangerous and similar events might be repeated in the future, inherent safety features reduce the frequency and consequences of these events to acceptable levels.

## THE EARTH'S SOURCES OF ENERGY

Adrian V. Clark, Toney, AL 35773

Our Solar System came into existence more than 4.5 billion years ago forming from hydrogen and other elements which are now found on the earth. These same elements are detected in the sun and found in the other planets of our solar system. Our Solar System has potential energy in its mass which is being converted into electromagnetic energy in our sun through thermonuclear processes.

Almost all of the earth's known available energy for our use is arriving continuously from the sun or arrived from the sun years before. The energy arriving from the sun in previous years has been stored in the form of fossil fuel, coal, oil, gas, or it has been stored as plant fuel, wood, grain, grass. The stored energy is now being consumed at an increasing rate which will deplete known stored energy in the foreseeable future.

Recognizing the need to conserve and obtain new, cheaper sources of energy, considerable interest has arisen in utilizing free solar energy. However, this "free" solar energy has a low energy density, i.e. low BTU's per square foot per hour which require a large collecting area hence an expensive system to collect it.

In the early 70's I was in charge of the design and construction of the first solar collector, home system which heated and air conditioned a mobile home at Marshall Space Flight Center in Huntsville, Alabama. That system and structure to hold the collector and storage tank cost about \$47,000; compare this to the cost of a heat pump system which would cost about \$8,000.

But you have to pay for the electricity to run the heat pump (about \$500 per year) and the solar energy is free-until repairs are needed to the solar system.

However, the government is pushing and spending billions on solar collector systems while those engineer and scientists like myself say that solar collector system for household use are not practical i.e. too expensive for the energy obtained. So, what is practical?

Taking an overall view of the energy process known to the cosmologist and astronomer, we see that the basic source of the solar system energy is the residue from other suns which have exploded and the basic hydrogen of space which originated shortly after the Big Bang.

At present on earth we primarily use energy stored in chemical deposits produced by the sunlight. These energy sources are producing contamination which could be fatal to life on earth. Another concern is the fluctuation in energy from the sun.

Future energy prospects involves understanding energy conversion processes on earth and in the sun as well as the effect of our pollution in the earth's atmosphere. The earth is also at the mercy of large meteors from space.

Space experiments have shown that Mars is too cold and Venus is too hot compared to the earth's pleasant temperature. Why does the earth trap the right amount of energy for our needs? Space probes have also detected the most concentrated energy sources known i.e. Black Hole.

The energy sources being utilized today and those proposed for future use have serious disadvantages. Fossil fuels pollute and are limited, and change the earth's greenhouse effect. Nuclear fuels pollute and are hazardous. Sunlight has a low energy density at the earth's surface. Solar Power from space is expensive and long range.

There are possible powerful new energy sources which tap the basic sources of all energy in the universe. These seem to produce no pollution but require expensive development before they are available. Thermonuclear power plants would produce power in the same way that the sun produces energy. Fuel producing green plant's which fix latex from which oil can be produced hold promise but will be more expensive than oil from the earth.

The most promising source of unlimited energy is superspace which may be the source of all known energy of the universe. This source is in the theory stage requiring experimentation to verify the theory before it offers much hope to solve our all consuming urge for energy and more energy.

PSYCHOLOGY, MYSTICISM, AND THE CHRISTIAN EXPERIENCE  
Russell A. Elkins, Emory University, Atlanta, GA 30322

A systematic use of the quadralateral of reason, experience, scripture, and tradition offers the Christian a means of evaluating modern psychologies, humanistic therapy techniques, and cults of psycho-religious phenomenon. In this paper the quadralateral is systematically

applied to the Old Testament Prophets, Amos and Hosea, and to the Muggletonian religious sect of the Seventeenth Century England. Out of this analysis guidelines are developed for the individual to design a personal quadrilateral that will enable him/her to investigate the credibility of a movement or therapy and to make an informed decision.

SPIRITUAL AND PSYCHOLOGICAL WELL-BEING:  
TENTATIVE THEORETICAL AND EMPIRICAL IMPLICATIONS

Calvin Farnham, Needs-Resources Center for Future Studies, Berkeley, CA 94556

As part of the psychology boom, the concept of spiritual and psychological well-being has been receiving increased interest. David Moberg has written extensively on spiritual well-being, including defining the need for research, the research task and the expected consequences of the research. This paper addresses one approach to extending Moberg's work. It includes the conceptualization of a well-being index; shows the degree of compatibility between the index's spiritual and psychological characteristics; indicates some apparent correlates of well-being (ethical behavior, physical health, and lifestyle); and identifies some of the apparent major causes of well-being, both nonspiritual and spiritual (including spiritual practices, spiritual experiences and beliefs and what will be called the "evangelical factor"). Some of these positions will be supported by the results of a pre-test of over 100 respondents.

This study as discussed in this paper, is part of an ongoing survey research program at New College for Advanced Christian Studies in Berkeley on the evangelical factor and associated variables such as spiritual and psychological well-being and ethical behavior. Partly, the goal of this program is to evaluate the fruitfulness and consequences of New College's efforts by collecting this and other information from our students over time. In addition, this program is envisioned to include other participating religious and secular institutions or groups such as the ASA.

A CHRISTIAN APPROACH TO RISK

Charles A. Givler, Lafayette College, Easton, PA 18042

The current debate regarding safety in nuclear power production, plus the recent emergency at the Three-mile Island plant in Pennsylvania underscore the point that risk plays an important part in our lives.

Of all the decisions we make in life there is not one which does not involve risk. If we vote against fluoridation of our drinking water we risk cavities, if we vote for it we may be inviting even greater trouble. Those in government and industry who decide what energy route we take gamble with our health and welfare as well as our money.

The Christian decision maker is in a peculiar position regarding risk. He belongs to a sovereign God who counts the sparrows as well as the hairs on his head, a God who overrules in the throw of a die (Prov. 16:33); yet he is 'free' to make all sorts of decisions which may affect the welfare of his family and community.

The Christian answer to risk includes stewardship and faith. As God's stewards we must consider all the data, pray and make our decision with the revelation and wisdom He has provided. Although we observe all sorts of 'random' happenings in the world, we must cling to the fact that God is not arbitrary or negligent. The teaching of Scripture is that God cares about every facet of our lives, that all things work toward good for those who love Him. Although the outcome may not be known to us there is comfort in the fact that God is in control.

A COOPERATIVE PROGRAM BETWEEN THE UNIVERSITY OF ALABAMA  
IN BIRMINGHAM AND THE UNIVERSITY OF CHIAPAS, MEXICO  
Donald L. Grigsby, U. of Alabama, Birmingham, AL 35226

The University of Alabama in Birmingham has been engaged in a cooperative program with the University of Chiapas over the past three years. Ostensibly, this is a Masters Degree Program for the faculty of the University of Chiapas, and that is in truth the central aspect of the activities. However, the full scope of the program is much broader than just providing course work which will lead to a Master of Arts Degree. The first of these additional aspects of the program is found in the cross cultural benefits which have accrued to all who have been involved in the program. Secondly, there is the opportunity to see comparative education in a first hand setting and finally, all of us who have been active in the program have gained the advantage of being a part of a political environment totally different from our own.

In addition to the advantages to the individuals who have been involved in the program, the institutions have benefitted in several ways. Especially helpful have been the things which we have learned and could be of help to other institutions who get involved in similar programs. The first of these things which we have learned is that it is imperative that a program of this type involve joint planning. Secondly, personnel who work in programs of this type, especially those who actually visit the site locations, must be selected carefully and be given thorough orientation. Thirdly, it must be realized that the administration of a program of this type will not conform to any domestic administrative model. Finally, as with any program of this type in the third world, there is always the opportunity for Christian Service. The main point is that anyone involved in a program of this type is in that country without missionary status. That works to both an advantage and a disadvantage, but still provides an opportunity for service.

In one sense of the word, this program has been a qualified success, but in consideration of the entire scope of the program, it has clearly been a mutual benefit to both institutions involved.

#### RELATED ORGANIZATIONS

H. Harold Hartzler, Mankato State University, Mankato, MN 56001

As Charles E. Hummel, Director of Faculty Ministries of IVCF has stated recently, "Evangelical Christianity is flexing its muscles in many directions, one of the most heartening is the growth of Christian professional societies". For a number of years the author of this paper has been studying the activities of other Christian professional societies.

In a number of instances the ASA has cooperated with other Christian groups by having joint meetings. I can recall with pleasure the fine meeting we had at the Kings College in 1965 when the ASA had a joint meeting with Inter-Varsity Christian Fellowship. Previously in Chicago at Trinity College we had our annual meeting jointly with the Evangelical Theological Society.

For a number of years we had an extra annual meeting sponsored jointly with the Evangelical Theological Society. Some time ago the Northcentral section of the ASA had a joint meeting with the local Christian Medical Society.

More recently a number of other Christian professional societies have been organized. Thus we have the Christian Dental Society, the Christian Medical Society, the Christian Legal Society, the Christian Association for Psychological Studies, the National Association for Christians in Social Work, the National Educators Fellowship, the Nurses Christian Fellowship and many others.

This paper will give some information on more than thirty Christian Professional Societies. Christians in many areas are seriously attempting to relate their fields of learning with the message of the Gospel of Jesus Christ.

Two other organizations with which the ASA should work more closely are the Bible-Science Association and the Creation Research Society. It is the conviction of the author of this paper that we should join forces whenever possible as we continue in the great battle for the souls of men. May God grant us the necessary grace.

#### PRACTICAL PREVENTIVE MEDICINE

Jay Hollman, Grady Memorial Hospital, Atlanta, GA 30309

Amid the maze of science and of pseudoscience in nutrition and preventive medicine certain clear facts and probable certainties emerge. Other associations remain tenuous. Cigarette use is certainly associated with a causal role in lung cancer and is positively associated with many other cancers. Smoking cigarettes is clearly associated with increased incidence of ischemic heart disease (IHD) and peripheral vascular disease. 95% of hypertension, clearly associated with increased IHD, strokes, renal failure and other cardiovascular events, may be a direct function of dietary sodium intake in genetically susceptible subjects. Low dietary fiber is associated with a higher incidence of chronic bowel conditions including carcinoma of the colon. A diet low in animal fat, cholesterol and saturated fats will have a favorable lowering effect on human blood cholesterol. Lowering blood cholesterol will definitely slow and reverse atherosclerosis in animals, its effect in man is unproven but it is probably the same as in animals. Obesity is associated with a higher incidence of risk factors for IHD. Exercise will lower risk factors for IHD and has other physiologic and psychologic benefits. Vitamin C in high doses probably has no effect on the incidence of the common cold. Vitamin therapy in the absence of clear deficiency is without proven scientific value. Data on refined carbohydrate is confusing, no clear conclusion can be made. Alcohol and coffee in moderation are probably without adverse effect. Data from scientific studies can give us practical information to help us live longer and healthier and be better stewards of our Lord.

#### THE FUTURE IS UP FOR GRABS

Fred Jappe, Mesa College, San Diego, CA 92041

The present western world situation with regards to a dominating philosophy is reasonably unique. Only rarely in history has the future been as unpredictable. Some of those times were (1) The First Century, (2) The Sixteenth Century, (3) the Age of Science to the Present.

Science, the current dominating force, faces great problems in philosophically dominating the future. Some of these problems are: (1) the problem of technological pollution, for which it is seen as responsible; (2) the problem of meaning and (3) the problem of ethics, and values. Since the future is more open, it is a golden time for Christianity and in addition, Christianity as a philosophy is strongest just in those areas where today's dominate philosophy is weakest; that is in the area of ethics, meaning and values.

A special challenge has been given to Christianity as it seeks to be honest both to God and to Scripture. It should play an important role in helping Modern Man accept the possibility of Christianity being the dominate philosophy of tomorrow.

Some areas that will need to be worked on are the following: (1) Re-establishing the authority but not the infallibility of Scripture. (2) A new understanding of our relationship to both Jews and other Christian Denominations. (3) A coherent world view which is both open to the new ideas of science and honestly handles the question of God, Christ and Scripture.



FISH FOR FOOD FOR EAST AFRICANS  
Wayne Linn, Southern Oregon State College, Ashland, OR 97520

The intention of my presentation, "Fish for Food for East Africans", is to put the fisheries resource into perspective for the viewers - the importance of maintaining the resource for its productivity as food. It is also important to convey the merit of the resource as a "free goods", requiring very little effort and expense to "grow"; thus it is valuable to the economically poor, too.

The presentation will be a slide talk with the following areas of emphasis:

Native methods of harvesting.

Ways to help improve these methods: tools and techniques.

Introduction of means to harvest the resource not reached by conventional/traditional methods.

Means of improving fish quality or maintaining quality for marketing.

Ways of getting fish from site of harvesting to the markets and eventually the consumers.

How to start and maintain a self-perpetuating food production scheme that includes fish.

Overall objective of a fisheries program in a third world nation is to increase the quantity and quality of fish available as food for the people; yet perpetuate the resource. Fish meet a lot of the needs of the people: food, protein, employment, activity, and economy. Fishing is a way of life/living, too.

DOES BELIEF IN SPECIAL CREATION INHIBIT SCIENTIFIC INVESTIGATION?:  
AN ANSWER FROM THE HISTORY OF SCIENCE  
Marvin L. Lubenow, Fort Collins, CO 80524

Since 1972, more than eighty debates on the general subject of Special Creation vs. organic evolution have taken place on the secular university campuses of our nation. A systematic analysis of the arguments of the evolutionist debaters reveals that one argument is used most consistently and repeatedly. It is the insistence that a belief in Special Creation disenfranchises one from the ranks of true scientists. The problem, as seen by evolutionists, is even deeper than the idea that Creationists are not able to study nature without bias. Many evolutionists feel that belief in Special Creation is totally incompatible with a scientific approach to the study of nature--that a study of nature is thus worthless because creationists "already have all the answers."

The problem can be approached from several directions. However, one of the most compelling refutations of the evolutionary charge against creationist scientists seems to be the historical argument.

There seems to be a consensus of agreement that the main purpose of science is to bring unity and intelligibility to nature. If that is indeed the purpose of the scientific enterprise, then the greatest scientists have been those who discovered and elucidated those laws or principles that would reveal this basic unity in nature.

If one uses this criteria, then scientists working on creationist postulates, such as Newton, Maxwell, Faraday, and others, have made the more significant contribution to science. Further, these men all declare that their contribution to science was made, not in spite of their creationist beliefs, but because of their creationist convictions. Thus, the evolutionist argument--though appearing at first glance to have a degree of logic to it--does not hold up historically. Creationism, rather than being a deterrent to discovering this unity of nature, seems to be a superior postulate upon which to work.

SIGNIFICANT FOSSIL DISCOVERIES SINCE 1958:  
CREATIONISM CONFIRMED  
Marvin L. Lubenow, Fort Collins, CO 80524

One of the most complete representations of the fossil record is found in the inside cover of the book, Introduction to Historical Geology, Second Edition, by Raymond C. Moore (New York: McGraw-Hill Book Company, Inc. 1958). Moore, who until his death in 1974 was Professor of geology at the University of Kansas, was one of the most distinguished paleontologists of this century. The chart consists of a series of eighty-five solid parallel lines representing the history of life. The chart is significant for its indication of a complete lack of transitional forms. Alleged evolutionary relationships are included as dotted lines.

Using this chart as a starting point, Lubenow examines the significant fossil discoveries since 1958 as reported in the relevant scientific and paleontological literature. When these more recent discoveries are integrated into the chart, two things become apparent: (1) the complete absence of transitional forms continues as an integral feature of the fossil record, and (2) a trend toward the common origin of all life at one point in time also becomes evident. This feature is seen in the recent discovery of predators as well as vertebrates (fishes) in the Cambrian. The result is a remarkable strengthening of the historical evidence for Special Creation as opposed to the concept of evolution. The time or date of creation is not a consideration of this paper. This is a twin screen-twin projector audio visual presentation. Copies of the fully-documented paper will also be provided.

THE CLAMSHELL ALLIANCE VIEW OF NUCLEAR ENERGY  
Kenneth A. Martin, Gordon College, Wenham, MA 01938

As the nuclear energy controversy continues, the number and influence of anti-nuclear groups grow. The Clamshell Alliance is probably the best known such group. But who makes up the Alliance? What are their objectives and how realistic is their understanding of our energy situation?

To answer these and other questions, this paper will examine the origins and past history of the group, the nature make-up of its membership and the philosophy and methodology of its actions. Particular attention will be given to the Alliance's understanding of nuclear energy and various other energy alternatives.

BASES OF BELIEF: CULTURE, SCIENCE AND REVELATION  
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The problem of science and the Bible continues to be an issue both among Christians and between Christians and a secular world of learning. When viewed as a belief system, culture is a third area of beliefs that needs to be analytically distinguished from both science and Divine revelation. When this is done, culture becomes a sharp tool and a framework is developed for more clearly considering the issues between creationism and evolutionism.

JOHN RUSKIN'S LAWS OF COMPOSITION FOR THE INDUCTIVE QUEST  
SEEING STRUCTURE AS THE CLUE TO FUNCTION IN BIBLE STUDY  
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Who knows when the first person suspected that the repetition of the word "believe" in John's gospel might be the clue to the gospel's interpretation? This hunch proves to be internally corroborated by the gospel writer (John 20:31).

One wonders how many other portions of Scripture might be unlocked through the discovery of structural patterns. And we wonder which patterns, in addition to repetition, we should look for! Here the help of John Ruskin, the first professor of art at Oxford (1870), proves practical and helpful.

Ruskin emphasizes the importance of recovering "the innocence of the eye," or "infantine sight," the art of seeing things exactly as they are. His Laws of Composition briefly: 1. PRINCIPALITY - Does any part get stress, and what is subordinate? 2. REPETITION - Are parts repeated and with what effect? 3. CONTINUITY - Are any parts repeated with variation and how? 4. CURVATURE - Is there a climax?

5. RADIATION - Is there a vital center to which and from which all details point? 6. CONTRAST - Is it employed and to what degree? 7. ALTERNATION - Are any parts interchanging and how? 8. CONSISTENCY - How advantageously are opposites resolved? 9. HARMONY - Are the several parts in balance or out of proportion?

Joyful response follows firsthand discovery. In time a discipline is mastered. You see what others do not. Teaching ministry gains backbone, for the Scriptural structures provide their own outlines. Richard Feynman, well-known physicist, describes physics as inductive because it gathers bits and pieces to formulate conclusions, whereas mathematics is more deductive, traditionally building bits and pieces upon self-evident axioms. Ruskin's approach to composition is inductive. Paul McKowen, pastor and ASA member, has utilized Ruskin's laws in Scripture study and teaching for 24 years.

SOLAR CONVERSION: A COLLEGE GREENHOUSE  
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Energy awareness among Christians is not high. This is also true of Christian colleges. There is a real need for demonstration projects to increase awareness of alternatives. The project described here is the conversion of an old one thousand square foot greenhouse to partial energy-independence. Greenhouses use large amounts of energy in relation to their size due to the amount of exposed surface. Also a separate greenhouse will be increasingly difficult to justify on a small college campus as heating costs soar. Since greenhouses are already solar collectors, use of this energy for heating seemed reasonable. It soon became clear, however, that energy conservation would have to make a major contribution. This was true since studies of past fossil fuel usage and solar energy revealed a large discrepancy between the two. Various energy conservation steps are being implemented. Some preliminary data on the solar operation for March and April will be presented. Other possible energy awareness projects will be briefly discussed.

## VARIATION OF LEVELS OF PHOSPHATE ESTERS IN RED BLOOD CELLS OF VARIOUS ANIMAL SPECIES

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A great deal of emphasis has been given in recent years to similarities in amino acid sequence of various proteins in different animal species, particularly in regard to cytochrome C and hemoglobin. Much less information has been available regarding levels of various key metabolites of cells. For example, different phosphate esters bind to hemoglobin and markedly alter its affinity for oxygen. Since the function of hemoglobin in red cells is to bind oxygen in the lungs and release it in the tissues, chemical modulators of hemoglobin play a very important role in animals utilizing red blood cells in a circulatory system. Four phosphate esters, adenosine triphosphate (ATP), 2, 3-diphosphoglycerate (DPG), inositol pentaphosphate (IPP), and guanosine triphosphate (GTP) appear to serve as chemical modulators of this type in various species.

ATP is present in red cells of all animals, but in varying amounts. It has a major role in energy storage in addition to modulating the properties of hemoglobin. DPG is present in most mammalian red cells, but the amount of DPG in different species varies ten to twenty fold. DPG is present in red cells of turtle and chick embryos and hatchlings, but absent in adults. It is present in red cells of salamanders and frogs, but not in red cells of alligators, lizards or snakes. IPP is present in large amounts in red cells of adult birds and in small amounts in red cells of adult turtles and frogs. GTP is present in small amounts in all red cells, but seems to have a unique role in red cells of certain species, e.g., the saltwater eel, the lemon shark and the ratfish. Red cells of fish do not contain appreciable amounts of either DPG or IPP. The evolutionary implications of these phosphate ester studies will be discussed.

## POPULATION CONTROL IN THE CLASSICAL AGE

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For most of antiquity and the early classical age population control was not a problem. Recurring wars, famines and plagues generally kept the population stable or well below what society could afford to support. In certain recorded instances, population was controlled by migrations of people into new areas with a limited population.

However, with the coming of the classical age under the control of Greece and Rome, there was a rapid growth in planned population control. Many people of child bearing age refused to have children or refused to raise more than two or three. Babies not wanted were exposed. Infant exposure became one of the major means of controlling population with the result that some places became desolate for want of population. Other problems also arose from this policy of child exposure. Another means of population control that was popular was suicide. To take one's life under certain circumstances (disease, defeat, possible slavery) was considered courageous and noble. Suicide was considered the right of every human being. To live merely for the sake of existing was considered ignoble. Since death was the end of everything, people were encouraged to elect death rather than live in an intolerable situation.

Modern man faces population problems. In all too many cases, war, famine and plague still reduce population. We too, are faced with the migrations of peoples, whom we choose to call refugees. Also we face the problem of unwanted life. What do we do about unwanted pregnancies (abortion?). Also with medical advances which can prolong "life" indefinitely, do I have the right to "die with dignity".

PSYCHOLOGICAL RESEARCH, COMMON SENSE AND PERSONAL GROWTH  
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The call for a "rebuilding" of psychology on Christian premises has in large part ignored the contribution of involvement in psychological research, the important role of which was argued in a previous paper. In this sequel, the position is taken that almost exclusive domination by therapeutic perspectives in defining psychological health or personal growth should be challenged. The potential role of involvement in psychological research in defining and enlarging our conceptions of personal growth promises a more balanced critique of psychology than has been the norm heretofore and more fruitful attempts toward integration.

The type of integration referred to may be called a "living integration." To appreciate its potential value sympathetic participation is required in the process by which psychological knowledge is created. Discoveries in psychology, as in any field, do not occur in a vacuum but begin with the background "common sense" knowledge which informs everyday experience in our culture. Also, personal, idiosyncratic elements partially determine the starting and ending points of psychological investigation as numerous examples reveal. However, the grounding psychological discovery in an everyday human context is not necessarily a basis for criticism since such discovery can precipitate self-discovery too--a process of increasingly realistic self-appraisal. Coincident with such a process is professional growth through interaction with colleagues within the field; but laymen, too, may participate sympathetically if they are willing to entertain skepticism of their common sense modes of self-definition. In this manner a fruitful dialogue between psychology-being-created and our authentic being-with-God in the world can be facilitated.

MEN, ANIMALS, AND MACHINES:  
TOWARD A NEW DEFINITION OF HUMAN  
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As Christians, our interpretation of God's Word must fit without contradiction within the reality of the physical world as each sees it. The understanding of certain Biblical passages has changed in the past as our knowledge of creation has grown and developed through scientific investigation. This process is at work in modern Christianity as well. Recent studies in exploring the behavior and intelligence of animals may require a revised definition of the meanings of "man" and "in the image of God", blur the distinction between animals and machines, and open new vistas in the use and versatility of computers.

COMPETITION: WHO NEEDS IT?  
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Competition is a way of life in the west. Politics, economics, athletics, academics and so forth are geared to competition. Some of this is necessary, some unnecessary. The Christian must sort out and make daily decisions on the direction of his life.

Competition in politics and economics tends to be beneficial. In elections, it is always helpful and informative for candidates to state opinions and stage debates. This competition enables the citizen to vote more intelligently. It is beneficial, assuming the candidates do not attack the character of the opposing candidate. In economics, competition normally keeps quality up and prices down. The consumer benefits from this economic competition.

In other areas, such as athletics, academics, family life, and so forth, competition is not so beneficial. Clearly, the Olympics, professional sports and similar athletic events are based on competition. The prime motive is winning and not bodily exercise. Since the majority of us do not have the ability or time to compete in this sense, and since our participation in athletics is usually for bodily exercise, the type of competition in which we desire the failure of an opponent is not beneficial.

Similarly, a classroom situation, which is based on competition, is not beneficial. To pit one student against another impedes the learning process. For example, to limit the A's in a class is unfair. A student in a competitive classroom is not at ease or relaxed--a necessity for the student to learn.

Finally, a family cannot be based on competition. To make children compete against one another for parental love or approval is divisive. To compare children against one another breeds hatred between siblings. Husbands and wives who compete against one another will not have a bond of love. For example, there may be a competition for authority or there may be a competition in giving of gifts. Families must not compete; there is a place for individual competition.

Today's Christian must compete against himself--doing better than the day before. He must sort out the good from the bad and the best from the good. The challenge is to become the person God wants him to be.

QUANTUM PHYSICS AND PSYCHIC PHENOMENA  
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Certain psychic phenomena (e.g., psychokinesis and remote viewing) have been subjected to such extensive scientific study and with such careful control that lingering doubts about the genuineness of the phenomena have all but been eradicated. As a physicist, I am very interested in the evidence that these phenomena bring to support the 20th century worldview of physics as modified by relativity and quantum mechanics. In this paper I will briefly describe some of the experiments and their results which impact most directly on our conventional (19th century) notions of space and time. I will also discuss recent activities in quantum physics, both theoretical and experimental, which suggest that at a deep level there is an "interconnectedness" which transcends spacetime. Finally, I will suggest ways in which psychic phenomena and related "mind stuff" can be understood as "natural."

THIRD WORLD DEVELOPMENT PROGRAMS:  
THE IMPORTANCE OF VALUE SYSTEMS  
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Although the technical personnel from the United States are usually very well trained in their fields, many development projects attempted in Third World countries have been unsuccessful. In some cases, one might even argue that the excellence of the technical training is part of the problem, especially since most training is program-oriented rather than people-oriented.

In many instances program failure can be attributed to cultural rather than technological problems. This paper will deal with the importance of the cultural context of technological development, especially the influence of value systems.

ENERGY PRODUCTION AND MINERAL RESOURCES:  
A CHRISTIAN PERSPECTIVE

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Mankind has been provided with an inheritance of energy and non-fuel mineral resources which are located primarily within the earth's crust. Exponential growth of consumption, however, recently has illuminated limitations to that inheritance. Furthermore, we are beginning to discover that energy production is limited by the availability of critical minerals, and vice versa. These issues induce at least three consequences which call for ethical decisions: economic relationships between producing and consuming peoples; environmental effects of production and consumption; and imminent exhaustion of certain resources.

Increasing numbers of humanistic scholars are calling for some sort of conservation ethic, ostensibly to prolong the survival of the human species. By contrast, Christian scholars, who claim an absolute basis upon which to act, have been relatively silent on this issue. In this paper we will first present limitations to consumption of energy and minerals posed by the possible exhaustion of certain of these resources. We will then consider some of the responses encountered within the Christian community, and finally develop the rationale that the responsibility of stewardship requires distinctive actions of that community.

BIBLICAL ETHICS AND ENVIRONMENTAL HEALTH STANDARDS

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Decisions about future energy strategy in the U. S. and other industrialized countries involve economic and environmental considerations. Stringent requirements of minimal release of pollutants raise the cost of energy production from conventional sources, such as fossil or nuclear fuels. Allowable pollutant concentrations are presently based primarily on human health effects where such effects have been determined.

Most recently, the impact of environmental regulations upon the local and national economy is a required feature of the standard setting procedure. A form of risk-benefit analysis is proposed which means the decision is based on social utility. A major difficulty, from an ethical viewpoint, is that those at risk are not necessarily those deriving the most benefit.

In the final analysis, Biblical ethics are not consistent with social utilitarian principles. Both Old and New Testament speak against societies in which life or health is "traded" for the gain of some. The decisions though, must be based on real, not imagined effects.

Decisions based on Biblical ethics may still involve trade-offs. People must be free to accept risks, as they do when driving cars, using electricity, or smoking tobacco, but they should have adequate information on which to make the decisions. This is the responsibility of environmental scientists and engineers.

DECENTRALIZED APPLICATION OF SOLAR ENERGY TO DEVELOPING COUNTRIES:  
A NEW DOOR OF OPPORTUNITY FOR THE CHRISTIAN

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The professional missionary to foreign countries has become an "endangered species". An irreversible trend has developed wherein one country after another is closing its doors to Christian Missions. At the same time, most lesser developed countries (LDCs), that are keeping a wary eye towards missions, are opening their door wide to professionals and technicians from the West. Because of its availability and attractiveness, solar energy R&D has moved to the top of the priority list of most LDCs as a future alternative towards the growing fuel crisis.

The Christian engineer, scientist, or economist, with a desire to fulfill the Great Commission in LDCs can take advantage of this new opportunity.

Solar energy R&D efforts that are best adapted to LDCs are of the decentralized, small-community type that utilize local materials for construction. Such R&D activities are in progress at the Solar Energy Research Institute and will be discussed in some detail at the symposium. More specifically, the discussion will include: photovoltaics; biomass production and conversion, with emphasis on digestion, fermentation, combustion and gasification; innovative wind concepts; and the use of solar ponds as low-cost collectors operated in conjunction with thermoelectric generation of electricity.

#### MYTHOLOGICAL FEATURES AND THE POLEMIC NATURE OF GENESIS 1:1-2:4a

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In studying the Old Testament, scholars have had to deal with the problem of clear parallels between the Hebrew cosmogony and cosmogonic literature (or myths) of ancient pagan cultures. Important distinctions can be made, however, through an investigation of the concept of myth. The creation story in Genesis 1:1-2:4a is rich with mythological features and is the text used for this study.

When the ancient Babylonian cosmogony, Eneuma elish, was found and translated, it was generally assumed that the Hebrew account was simply a derivation of the Babylonian account. This is in part true, but the assimilation of material into the Biblical account was intentional. This paper investigates the historical situation of the author(s) and the purpose for his use of mythological features.

The phenomenological definition of myth has proven to be the most valuable for study. It sees the purpose of myth as the way in which a culture understands and maintains reality. Through this definition of myth the Hebrew culture appears to be quite distinct when compared to pagan cultures. The verse by verse comparisons of Genesis with Eneuma elish reveal that the Hebrew account had a very different world view. The purpose behind the author's use of mythological features was to form a polemic against the circulating pagan cosmogonies during the exile.

The significance of the Genesis creation story is not by any means minimized by this approach. As C. S. Lewis observes about Israel, "as they were the chosen people so their mythology was the chosen mythology--the mythology chosen by God to be the vehicle of the earliest sacred truths . . . ."

#### OCEAN WAVE ENERGY: AN UNTAPPED RESOURCE

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Analysis of mean open-sea-wave energy yields an average energy-content of 83 MW/Km (133 MW/mi), where the measure is taken along a line normal to the propagation direction of the waves. Since this is mechanical, not thermal, energy, the Carnot efficiency limitation does not apply. Overall conversion efficiency to shore-generated electric power in excess of 25% can reasonably be expected. A proposal for a simple, rugged, and reliable machine to extract the energy will be made.

The environmental impact of such a machine may be summarized:

Fuel cost: None

Ash, smoke, radioactive wastes: None

CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub> pollution: None



Thermal pollution: None

Noise pollution: None

Reduction in wave height at the shoreline: est. 30%

Visual impact: minimal for an embodiment involving a line of buoys at about 2 Km offshore.

Land impact: No greater than for a hydrosystem (assuming pumped-water storage).

#### PRESENTING A CHRISTIAN WITNESS ON A SECULAR GRADUATE CAMPUS

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On many graduate campuses there are quite a number of individuals, both students and faculty, who have experienced the saving grace of our Lord. Arriving at a center for advanced studies, some of these become intimidated, confused by the various viewpoints presented to them and unsure of whether or how to continue in the faith. At the U. of Oklahoma Health Sciences Center in Oklahoma City, with almost 3,000 students and 1,000 faculty and staff we have overseen a ministry primarily for "maintaining the saints" for the last 15 years.

At the beginning of the academic year invitations are being sent to all new students to attend a reception in their honor sponsored by the Christian Medical Society in the home of one of the professors. The 100 to 200 students who show up for this event are followed up with mailings and invitations to other meetings. We meet usually once a month in the home of a faculty member for a combination worship-fellowship get-together which leads to the forming of Bible study groups. These activities are coordinated with the Baptist Student Union to help unify campus witness.

As a result of the various Christian activities, as well as person-to-person witness, some students have been led to the Lord. Some students have undertaken summer missionary programs and have later returned to the foreign mission field.

Last year we entered on another successful venture with the first annual MAP International-Pioneers in Medicine Lecture. Our speaker, Dr. Paul Brand, lectured on "Substitutes for Pain" and we advertised it widely. Many faculty members and students who usually do not attend events sponsored by our group, attended this lecture which ended with a warm-hearted reference to the working of God in the lives of men.

The Christian must exercise extreme care in walking circumspectly on and off campus or attempts will be made to discredit him. Thus, since a faculty member must and should treat all students alike, a personal witness is best given on a student to student basis, even as faculty members are usually more successful in getting a hearing from a faculty colleague.

#### NUKES OR NO NUKES? THAT IS THE QUESTION!

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The controversy in the U.S.A. over further installation of nuclear power plants has become increasingly emotional, if not irrational. Scientific data from 35 years of nuclear experience in this country and abroad are being ignored in favor of hypothetical doomsday predictions. The practical significance of this actual operating experience in relation to projected environmental hazards will be evaluated.

Two major points will be made: (1) There is no such thing as zero. Environmental radiation and radioactivity have been natural phenomena since the time of the earth's creation. This natural background radiation varies by 1-2 orders of magnitude around the world. It is against this natural baseline that any incremental increases from nuclear power plants must be compared. (2) There is no such thing as 100%. Absolute safety is impossible to guarantee for any mode of generating power. Nuclear critics consistently ignore the safety record of the nuclear industry and demand a level of safety which is both economically crippling and out of proportion to the risks involved.

Nuclear power opponents commonly make widespread use of moral and ethical value judgments to bolster their positions. Nuclear proponents often limit themselves to technological responses. A "dialogue of the deaf" ensues. Attention will be given to possible Christian approaches to this polarized situation. The author will draw on twenty years of teaching, writing, research and consultation in this field to provide some perspective on the essential issues involved in the "Nuclear Controversy."

#### IMPACT TODAY OF ANCIENT AND NEW TESTAMENT CONCEPTS OF ENERGY

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Energy is an ancient Greek concept -  $\epsilon\nu\rho\gamma\alpha$  derived from  $\epsilon\nu$  in, by and often used to intensify the root that follows and  $\rho\gamma\alpha$  - work or function.  $\epsilon\nu\rho\gamma\alpha$  is translated by such words as operation, activity, functioning or actualization. Its technical use comes from Aristotle, as a correlative of  $\delta\upsilon\nu\alpha\mu\iota\varsigma$  - power, and it indicates existing in action directed toward a complete or stable state called the  $\epsilon\nu\tau\epsilon\lambda\epsilon\upsilon\sigma\iota\varsigma$  i.e. fulfillment, completion.

In the NT  $\epsilon\nu\rho\gamma\alpha$  with cognates is mostly Pauline, used strongly and often with  $\delta\upsilon\nu\alpha\mu\iota\varsigma$ . It pertains to the power of God or of Christ, working toward a goal (Eph. 1:19), or to "the lawless one" working toward judgment (II Thess. 2:9-11). Paul takes up the technical vocabulary of the philosophers as they conceived action and applies it to the spiritual arena and its conflict, good and evil. This is available to us as Christians today and should be used to carry out the Lord's purposes. The  $\epsilon\nu\rho\gamma\alpha$  of error, we should avoid. In a Christian group or church showing spiritual vitality, its presence will be self-evident.

#### THE NEUROTIC CHRISTIAN: ECCLESIOGENIC NEUROSIS

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Why are there neuroses among church members? Does being raised in a Christian family contribute to the development of neurosis, perhaps through the high moral demands placed on the young child? Does the Christian Church itself induce neurosis among its adherents? Or does the Church simply attract a disproportionate share of society's problem cases, by offering comfort and acceptance? Are there more cases of neurosis in the Church than in other segments of society?

The problem of the neurotic Christian is discussed from a psychological standpoint. The problem is defined as perceived by theorists such as Paul Tournier, by practitioners in the field (ministers and Christian counselors), and by empirical and secular investigations. Actuarial predictions are discussed as a possible explanation of the problem, and the question of the Church producing, developing or drawing neurotic individuals is addressed. Some speculation about causes and cures is entered.