

Program Summary

Tuesday, August 24, 1954

- 8:30 a.m. Registration
- 9:30 a.m. Opening Session
- 10:20 a.m. General Session
- 1:30 p.m. General Session
- 7:30 p.m. Observatory Session

Wednesday, August 25, 1954

- 9:00 a.m. Symposium
- 1:30 p.m. General Session
- 3:00 p.m. Field Trip
- 7:30 p.m. Informal Discussions

Thursday, August 26, 1954

- 9:00 p.m. General Session
- 1:30 p.m. Discussion Session
- 3:00 p.m. Business Meeting
- 6:00 p.m. Banquet
- 8:00 p.m. Moody Science Film
- 10:00 p.m. Closing Session

Friday, August 27, 1954

Field Trips

OFFICIAL PROGRAM



Ninth Annual Convention

The American Scientific Affiliation

(Incorporated)

A group of Christian scientific men devoting themselves to the task of reviewing, preparing and distributing information on the authenticity, historicity, and scientific aspects of the Holy Scriptures in order that the faith of many in Jesus Christ may be firmly established



August 24-27, 1954



EASTERN MENNONITE COLLEGE
Harrisonburg, Virginia

Convention Committee

General Chairman:

Maurice T. Brackbill, M.A.
Professor of Mathematics and Astronomy
Eastern Mennonite College
Harrisonburg, Virginia

Program Committee:

W. Roger Rusk, M.S. (Chairman)
Associate Professor of Physics
University of Tennessee
Knoxville 16, Tennessee

Walter R. Hearn, Ph.D.
Instructor in Biochemistry
Baylor College of Medicine
Houston 25, Texas

George K. Schweitzer, Ph.D.
Associate Professor of Chemistry
University of Tennessee
Knoxville 16, Tennessee

The Purpose of the Convention:

"That they may see and know, and consider, and understand together that the hand of the Lord hath done this, and the Holy One of Israel hath created it." Isaiah 41:20

Program

Tuesday, August 24

REGISTRATION

8:30-11:30 a.m.

OPENING SESSION

9:30-10:15 a.m.

M. T. Brackbill, Presiding

Welcome—Dean C. K. Lehman, EMC

Remarks—Russell L. Mixter, President, ASA
Announcements

GENERAL SESSION

10:20-11:40 a.m.

W. Roger Rusk, Presiding

Devotions—J. R. Howitt

Psychology of Conviction—P. B. Marquardt

Physiology of Sleep—C. W. Taylor

Can Christians Learn Anything from AA?—

N. L. Peterson

LUNCH

12:00, College Dining Hall

GENERAL SESSION

1:30-4:00 p.m.

Walter R. Hearn, Presiding

Science and Biblical Miracles—R. Maatman

Ezekiel's Vision of the Waters—R. M. Allen

Accumulation of Mutational Changes and

Geological Time—W. E. Lammerts (to
be read)

PLANNED RECREATION

Tour of Laboratories with exhibits

4:00-5:30 p.m.

DINNER

6:00 p.m., College Dining Hall

Recreations Quoits, croquet, tennis, walks,
etc., Library open

OBSERVATORY SESSION

Telescopic Observations and Planetarium
Lectures

7:30-9:30 p.m.

M. T. Brackbill, Presiding

Wednesday, August 25

BREAKFAST

7:30 a.m., College Dining Hall

**SYMPOSIUM: ENTROPY AND
EVOLUTION**

9:00-11:30 a.m.

R. L. Mixter, Presiding

Devotions—P. Bender

Entropy and Physical Systems—W. R. Rusk

Entropy in Sedimentation—R. L. Wilson

Entropy in Relation to Genetics—W. J. Tinkle

The Complexity of Living Organisms—W. R.
Hearn

New Genes—J. C. Sinclair (to be read)

LUNCH

12:00, College Dining Hall

GENERAL SESSION

1:30-2:45 p.m.

Walter R. Hearn, Presiding

Recent Advances in Anthropology—J. O. Bus-
well III (to be read)

Recent Advances in Heredity—R. L. Mixter

FIELD TRIP

to Massanutten Caverns

3:00—5:30 p.m.

M. T. Brackbill, in Charge

DINNER

6:00 p.m., College Dining Hall

Recreations

INFORMAL DISCUSSIONS

7:30-9:30 p.m.

Groups and topics to be
announced

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Thursday, August 26

BREAKFAST

7:30 a.m., College Dining Hall

GENERAL SESSION

9:00-11:45 a.m.

W. R. Rusk, Presiding

Devotions—J. O. Buswell, Jr.

Toward an Understanding of the Decline of
the West—P. Peachey

The Life of R. A. Millikan—H. H. Hartzler

Science Education for the Missionary Candi-
date—C. G. Culley

The Skin of the Teeth—W. J. Schepp

LUNCH

12:00, College Dining Hall

DISCUSSION SESSION

The Aims of the ASA

1:30-2:45 p.m.

Brian P. Sutherland, Presiding

BUSINESS MEETING

3:00-5:00 p.m.

Russell L. Mixter, Presiding

BANQUET

6:00 p.m., College Dining Hall

M. T. Brackbill, Presiding

Biblicism and Science—C. K. Lehman

MOODY SCIENCE FILM SESSION

8:00-9:30 p.m.

W. R. Rusk, Presiding

(Observatory Session instead if
weather on Tuesday evening
was prohibitive)

CLOSING SESSION

10:00 p.m.

Farewell Devotions—W. R. Hearn

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Friday, August 27

BREAKFAST

7:30 a.m., College Dining Hall

FIELD TRIPS

Individual field trips to the numerous points
of interest in the Shenandoah Valley and East-
ern Virginia.

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ABSTRACTS OF PAPERS

The Physiology of Sleep

C. W. Taylor, FRCS (C)
Calgary, Alberta, Canada

Recent study in the cat has revealed an ascending reticular activating system in the brain stem. Its direct stimulation desynchronizes the EEG and reproduces the generalized electrocortical charges associated with arousal to alertness or attention. Acute lesions in its cephalic portion abolish the EEG pattern of wakefulness. In chronic animals, lesions in it are followed by persisting somnolence or lethargy and by EEG synchrony.

Evoked potential studies reveal a rich wealth of somatic and auditory connections with this system, and the findings suggest that afferent arousal to attention may be effected subcortically, by collateral excitation of the reticular activating system in the brain stem.

This same portion of the brain stem, when active, discharges in a caudal direction, as well, to evoke widespread autonomic discharge and exert a generalized facilitatory influence upon outflows to skeletal muscle. Its rostral part has recently been shown by Hume and Harris to augment the elaboration of ACTH by the pituitary in response to stress stimuli.

The varied channels of influence open to it—caudal, cephalic and endocrine—place this brain stem activating system in a favorable position to affect all parts of the body in arousal.

Can Christians Learn Anything from Alcoholics Anonymous?

Norvell L. Peterson, M.D.
Psychiatrist
Georgetown, Mass.

The purpose of this paper is to clear up confusion that seems to exist among many Evangelical Christians about the Alcoholics Anonymous, and its program. What Alcoholics Anonymous is not and what it is, is outlined together with an analysis of the twelve steps and the twelve traditions and their application to the Christians and the Church.

Science and Biblical Miracles

Russell W. Maatman, Ph.D.
Senior Technologist
Socony Vacuum Oil Co.
Haddonfield, New Jersey

A miracle should not be defined as an exception to a law made by God. A miracle is as natural or as unnatural as any other event and all events are part of the true natural law, the law only God knows. By

separating natural law and miracles, one is likely to deny that nature is ultimately unexplainable and that it is thus as mysterious and as demonstrative of the power of God as are miracles. When God performs a miracle, one of its purposes is always that man be taught that the true law of nature is far deeper than he can ever fathom. Traditional views of Christians and non-Christians, scientists and non-scientists, are discussed.

Ezekiel's Vision of the Waters

Roy M. Allen, Sc.D.
Private Consulting Metallurgist
Verona, N. J.

While the 47th chapter of Ezekiel has usually been interpreted as possessing only a spiritual application, careful study of numerous passages of Scripture in both the Old and New Testaments clearly indicate it to be prophetic of an actual condition which will be brought about sometime during the closing days preceding the millennial reign of the Lord Jesus Christ. Then Jerusalem will become a seaport city, the Jordan valley a waterway connecting the Mediterranean Sea with the Gulf of Akaba, the Dead Sea healed (i.e., no longer salty in the excess of ordinary sea water), and the King reigning "from the river unto the ends of the earth." Light is shed upon numerous passages and various prophecies in the Scriptures when they are understood as describing literal events associated with geographical conditions existing when Ezekiel's vision of the waters becomes a reality.

Entropy In Physical Systems

W. Roger Rusk, M.S.
Associate Professor of Physics
University of Tennessee
Knoxville, Tennessee

The purpose of this paper is to introduce the concept of Entropy to those in the group who have had no previous contact with it. Examples from mechanical systems, dynamics of gases, and chemical reactions will be used to develop some understanding of the basic ideas involved. Applications will then be made to physical systems of increasing complexity, with implications for biological systems.

Entropy in Relation to Genetics

William J. Tinkle, Ph.D.
Ball State Teachers College
Albany, Indiana

The Second Law of Thermodynamics gives a picture of a universe which is running down. Psalm 102, verses 25 to 28, is in agreement, picturing a universe which is wearing out like a garment. It has been claimed that the organic world is ruled by the opposite principle, as illustrated by a general upward trend

in evolution. The science of genetics has a right to speak for the organic world, since it deals with permanent changes. It describes genes as being usually stable, as illustrated by pure lines and clones. Changes occur, however, by a difference in chromosome number, chromosome breakage, and gene mutation. A discussion of these changes should reveal whether or not they give rise to losses which resemble entropy.

Biochemical Complexity and Its Significance in Evolution

Walter R. Hearn, Ph.D.
Assistant Professor of Biochemistry
Baylor University College of Medicine
Houston 25, Texas

Application of the precise methods of organic and physical chemistry to the study of materials produced by living organisms yields concrete information about the degree of complexity which must exist in living things. The picture of complexity already revealed by the information at hand is staggering to the imagination and must be accounted for in any satisfactory explanation of the origin and variation of living things.

The further elucidation of metabolic pathways in a wide variety of species will provide a more fundamental basis for testing evolutionary hypotheses than the results of morphological studies can provide. Investigation of model enzyme systems may shed light on the mechanisms by which endergonic and exergonic processes are coupled in living organisms. Even if such studies do not answer the most puzzling questions about the nature and origin of life, they are at least limiting and directing the course of future speculation about such questions.

Because of the key role of enzymes in life processes and the association of enzymatic activity with protein structure, the fine structure of proteins and the mechanism of their biosynthesis are of particular interest. Some recent work in these fields is reviewed in detail.

New Genes

John C. Sinclair, B.A.
Dept. of Physiological Chemistry
UCLA. Medical School
Los Angeles, Calif.

The recent, rapid development of biochemical genetics has given us an appreciation of the nature of mutations. Along with this insight has come the realization that most mutations give us nothing new. Some source of new genes is essential for any theory of Evolution, including threshold evolution. Along with this realization that most mutants are not new genes, has come a determined effort to find how new genes are formed. Several phenomena have been

advanced as sources of new genes.

A. Suppressors have been considered as new genes. Suppressors are known to act in two ways: 1. by an alternative pathway for the synthesis that has been blocked, 2. by allowing the synthesis of the missing enzyme. Neither of these ways results from a new gene.

B. Repeats of genes have been suggested as new genic material from which new genes could be formed. This is true, but the changes this extra genic material undergoes must be similar to changes occurring to unduplicate genes, changes that have never been known to result in a new gene.

C. Pseudoalleles have been suggested as diverging duplicate genes. This claim is based on our present definition of a gene. The gene may normally be more complex than we have hitherto realized.

Ideas of mutations as small unit changes which can be compounded to give discrete orthogenic differences are no longer valid, if these changes do not result in new genes. Isn't it then fitting to acknowledge that genes were created by God?

Recent Advances In Anthropology

James O. Buswell, III
Asst. Prof. of Anthropology
Shelton College
Ringwood, New Jersey

At this particular time in American anthropology there are at least two rather noticeable advances, the significances of which are already causing much discussion in journals and seminars. The first of these is what S. L. Washburn has called the "new physical anthropology." Having passed through its "initial descriptive phase", physical anthropology is now entering its "analytic stage" stimulated by recent advances in evolutionary theory, and by the focusing of genetic and other sampling and measurement techniques upon problems of process and cause rather than upon those of description and classification. The second is the recent ingenious application of statistical methods to problems of historical linguistics called Glottochronology. The possibilities of the rather elaborate procedure involving "morpheme decay", or the comparison of the disappearance or change of cognate morphemes at an established rate, occurring first to Morris Swadesh, an outstanding historical linguist, were stimulated by a consideration of the Carbon-14 method of dating archeological remains. A brief explanation of the method, and some examples of the important implications it has in correlating known and hypothetical archeological and historic relationships will be outlined.

Recent Advances In Heredity

R. L. Mixter, Ph.D.
Professor of Zoology
Wheaton College, Wheaton, Illinois

A review of the book "The Major Features of Evolution" by George Gaylord Simpson which deals with such problems as the accumulation of mutational changes in relation to geological time, mutation and the origin of groups of animals and plants, and the discontinuities of the paleontological record. The conclusion is that although genetics indicates changes of types following their creation, the amount of change is no greater than that of the horse series and comparable sequences; hence creation is needed to complete the explanation of the origin of phyla, classes, and orders.

Toward an Understanding of the "Decline of the West"

Paul Peachey, Ph.D.
Associate Professor of Sociology
Eastern Mennonite College
Harrisonburg, Virginia

Belief has become widespread that spiritual bankruptcy within and military attack from without are threatening western civilization with destruction. Whether western civilization is regarded as "Christian" or as the achievement of man in his slow upward journey, the crisis of recent decades forebodes retrogression. Viewed from within the gathered Christian community, however, these developments appear in other dimensions. For while the prospect of destruction is no less frightening, viewing it from this standpoint reveals new meaning and potentiality. The concept of the west as "Christian" is a legacy of the medieval ideal of the "corpus christianum", which ideal rested on partially false premises. The optimistic humanist and/or scientific view, on the other hand, is a legacy of the Renaissance and the Enlightenment, which movements likewise rested on partially false premises. The crisis of recent decades has to some extent laid these fallacies bare, thus opening the door for new Christian achievement. The realization that west is not Christian in the real sense of the word frees the Church from the bonds of western, or any particular, culture, thus enabling her better to be her transcendent self. The discovery of the relative character of scientific "absolutes" leads to a greater readiness in the scientific world to reckon with the possibility of a transcendent God. These two great developments place unique challenges before evangelical Christianity today.

The Life of Robert A. Millikan

H. Harold Hartzler, Ph.D.
Professor of Mathematics
Goshen College
Goshen, Indiana

Robert Andrews Millikan, first American Nobel prize winner in Physics, was born March 22, 1868 in Morrison, Illinois. Professor of Physics at the University of Chicago from 1896 to 1921, he then went to California to become Chairman of the Board of the newly organized California Institute of Technology. Here he did much to make this institution one of the outstanding ones of its kind in the world.

The views of Doctor Millikan on religion are often mentioned. He was one of the group of scientists, religious leaders, and men of affairs who signed a statement bearing upon the relation of science and religion. The following quotation is taken from this joint statement.

"The purpose of science is to develop, without prejudice or preconceptions of any kind, a knowledge of the facts, the laws, and the processes of nature. The even more important task of religion, on the other hand, is to develop the consciences, the ideals, and the aspirations of mankind. Each of these two activities represents a deep and vital function of the soul of man, and both are necessary for the life, the progress, and the happiness of the human race."

The Skin of the Teeth

William John Schepp, G.C.
President and Research Director
Wm. J. Schepp Co., Inc.
East Patterson, N. J.

A thirty-century-old cloud has been removed from the BIBLICAL statement of JOB about "THE SKIN OF THE TEETH". Should it be accepted literally or was it a proverbial statement as indicated in Webster's Dictionary? Some perplexed commentators suggested that the skin meant the lips. And the existence of organic material in the enamel was considered controversial by science for many years. But now equipped with the electron and phase contrast microscopes, science has caught up with the wisdom of JOB, and last year published evidence that the enamel of the teeth is actually a SKIN, consisting of an organic framework with crystalline mineral prisms.

When JOB said: "I AM ESCAPED WITH THE SKIN OF MY TEETH" he literally meant that his teeth were saved, while the skin of his flesh was infected with a horrible disease. The skin covering the flesh renews itself from time to time, but the skin of the teeth when once injured never repairs itself. Temporary teeth (without skin) are replaced by permanent teeth, and then soundness lasts only as long as the skin or enamel remains unbroken.

The mineral matter in the skin of the teeth, from x-ray patterns, is similar to natural rock Apatites.

And this involves a crossing of mutual interests; dental and medical researchers and mineralogists with interest in teeth, bones, phosphate fertilizers, fluorescent phosphors, and fluorinated water for prevention of caries in temporary teeth.

Moody Institute of Science Educational Film Program

F. Alton Everest, E.E.
Associate Director
Moody Institute of Science
Santa Monica, Calif.

An effective Christian witness in the secular schools of America encounters a number of obstacles. Because these obstacles rule out some traditional steps in evangelization, Christians have been reluctant to tackle the job at all. The Moody Institute of Science has now launched a program of production and distribution of science films specifically designed for classroom use. The purposes behind these films are (1) to provide a powerful testimony to the existence and reality of God with whom all men have to deal and (2) to make available exceptional science teaching values in a form highly interesting to students. It is felt that a wide spread use of such films may contribute significantly to a return to an academic atmosphere in which the knowledge of God may thrive. Launching of this program coincides with a noticeable tendency on the part of educators toward a return to "moral and spiritual values" in the curriculum as an antidote for the obvious failure of materialism to provide the necessary stability in our youth.

MEMBERS OF THE EXECUTIVE COUNCIL

- Russell L. Mixter, Ph.D. (1954) * President
Chairman, Division of Science and Professor of
Zoology
Wheaton College
Wheaton, Illinois
- Brian P. Sutherland, Ph.D. (1956) Vice-President
Administrative Assistant, Consolidated Mining
and Smelting Co.
Trail, British Columbia
- H. Harold Hartzler, Ph.D. (1955), Secretary-Treasurer
Professor of Mathematics
Goshen College
Goshen, Indiana
- Delbert N. Eggenberger, M.S. (1957)
Research Chemist
Armour and Company
Chicago, Illinois
- Hendrik J. Oorthuys M.S. (1958)
Assistant Professor of Electrical Engineering
Purdue University
Lafayette, Indiana
- * Year of retirement from Council

PAST COUNCIL MEMBERS

- J. Laurence Kulp, Ph.D. (1953)
Associate Professor of Geology
Columbia University
New York, N. Y.
- Roger J. Voskuyl, Ph.D. (1952)
President, Westmont College
Santa Barbara, California
- F. Alton Everest, E.E. (1951)
Associate Director
Moody Institute of Science
Los Angeles, California
- Allan A. MacRae, Ph.D. (1950)
President and Professor of Old Testament
Faith Theological Seminary
Wilmington, Delaware
- Edwin Y. Monsma, Ph.D. (1948)
Professor of Organic Science
Calvin College
Grand Rapids, Michigan
- Marion D. Barnes, Ph.D. (1947)
Research Chemist
Lion Oil Company
El Dorado, Arkansas
- Peter W. Stoner, M.S. (1945)
Chairman Dept. of Mathematics, Engineering,
Astronomy
Pasadena City College
Pasadena, California

Russell D. Sturgis, Ph.D. (1944)
Head, Department of Chemistry
Ursinus College
Collegeville, Pennsylvania

Irving A. Cowperthwaite, Ph.D. (1943)
Plant Engineer
Thompson Wire Company
Milton, Massachusetts

John P. Van Haitsma, Ph.D. (1942)
Professor of Organic Science
Calvin College
Grand Rapids, Michigan

The Objects of the American Scientific Affiliation are:

- "(1) To integrate and organize the efforts of many individuals desiring to correlate the facts of science and the Holy Scriptures.
- (2) To promote and encourage the study of the relationship between the facts of science and the Holy Scriptures.
- (3) To promote the dissemination of the result of such studies."

—Article I of ASA Constitution

Each candidate for membership in the ASA must sign the following statement:

"I believe the whole Bible as originally given to be the inspired word of God, the only unerring guide of faith and conduct. Since God is the Author of this Book, as well as the Creator and Sustainer of the physical world about us. I believe there can be no discrepancies when both are properly interpreted. Accordingly, trusting in the Lord Jesus Christ, the Son of God, my Saviour, for strength, I pledge myself as a member of this organization to the furtherance of its task.

Signed

—Article II of ASA Constitution

General Information

Registration:

Registration will be held from 8:30 to 11:30 a.m., Tuesday, August 24, in Assembly Hall

A fee of \$2.00 is requested to help defray the cost of the convention.

Accommodations:

Rooms will be available in the new Women's Dormitory at \$1.50 per day for a single room or \$2.25 per day for a double room. Room assignments will be made after registration.

Meals will be available in the College Dining Hall at \$2.75 per person per day. If all meals are taken in the Dining Hall, there will be no extra charge for the banquet which will be held Thursday, August 26, at 6:00 p.m. Banquet only, \$2.00.

Meetings:

All sessions will be held in Assembly Hall, unless otherwise designated or announced.

Field Trip:

On Wednesday afternoon at 3:00, a guided trip to and tour of the Massanutten Caverns will be conducted. An admission fee of 50c will be charged each person.

Bible Conference:

The famous Massanetta Springs Summer Bible Conference will be in session. All members of the ASA are cordially invited to attend the meeting if they so desire.