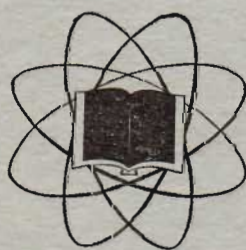


# JOURNAL

*of the*

## AMERICAN SCIENTIFIC AFFILIATION



*The fear of the Lord is the beginning of wisdom. Psalm III:10*

Volume 4

March, 1952

Number 1

# The Journal Of The American Scientific Affiliation

Vol. 4

MARCH, 1952

No. 1

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The Journal of the American Scientific Affiliation is published quarterly, March, June, September, and December by the American Scientific Affiliation. The publication office is located at 107 West Plymouth Avenue, Goshen, Indiana. The subscription price is \$3.00 per year. Single copies may be obtained at a price of \$1.00 each. Copies of back issues may be obtained at the price of \$3.00 per volume. Send all communications regarding editorial matters to the editor, Delbert N. Eggenberger, 1121 East 81st St., Chicago 19, Ill. Application for entry as second class matter is pending.

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## EDITORIALS

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The encouraging growth of the A.S.A. has enabled us to take another forward step. A printed rather than a mimeographed Journal has been envisioned by many of us for some time. The demand has now reached the point where a sufficient number of copies can be printed to bring the unit cost within our means. The secretary will have on hand a supply of each issue for those who may wish to purchase extra copies.

The establishment of two classes of membership may have led some Associate Members to feel that the Fellows are primarily responsible for carrying on the work of the A.S.A. That idea should be dispelled now.

We encourage all members to take an active part. The editor will be glad to receive papers along the general lines of endeavor of the A.S.A. to consider for publication. In fact, we are quite dependent upon Associate Members to carry out this very basic part of our activity.

Our field is a broad one. The development of our Christian philosophy of science needs a great deal of attention. New archaeological and geological finds can well be reported and discussed in relation to Scripture. Another suggestion is a series of articles thoroughly examining the faith of scientists of the past.

We also encourage book reviews. If you have recently read a book pertaining to the field of the A.S.A., we would appreciate a review or comments on it.

A few points for those not familiar with manuscript preparation may be in order. They should be typed **doublespaced**. Novel points that are not original should be carefully documented with the references. Direct quotations should always have the reference stated. If the quotation is extended copyright permission should be obtained and a copy of the permission sent along with the manuscript.

The editor will be glad to answer questions or give suggestions concerning your paper.

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## News Notes

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An interesting series of contributions by one of our brother A.S.A.'ers has been appearing in "Power." Dr. William J. Tinkle writes under the title, "It's a Fact," a fascinating fact from nature. Then under a subheading, "It's also a fact," correlates this fact with a truth of Scripture.

"Power" is published weekly by Scripture Press for young people and teen-agers. We appreciate the work of Dr. Tinkle in using this avenue for reaching these young people with the gospel.

Robert G. Ziegler (P. O. Box 701, Hopewell, Virginia): I have recently obtained a position as assistant research chemist with the Solvay Process Division of Allied Chemical and Dye Corporation.

Norvell L. Peterson reports that he is now out of the navy. At present he is senior psychiatrist at the New Jersey State Hospital. He states that God has been leading in a wonderful way. His address is New Jersey State Hospital, Trenton 8, New Jersey.

J. Frank Cassel of Fargo, North Dakota, where he is employed by the North Dakota Agricultural College,

writes that he is sorry that he was unable to be present at the New York Convention where he was scheduled to present a paper on the subject, "The Study of Evolution." He hopes to be able to attend the coming annual convention at the Wheaton College Science Station in the Black Hills of South Dakota.

To American Scientific Affiliation members of Los Angeles area.

RE Tentative plans for 1952 program.

### February 11, 1952 Meeting

Subject: Scientific Accuracy of Sunday School Literature.

This will be a survey of representative samples of SS literature to determine the method of treatment of typical subjects of controversial interpretation such as (1) Reconstruction theory of pre-Adamic creation, (2) The length of the days of Genesis, and (3) The age of man. The object will not be to judge the correctness of the interpretation, but only the fairness of the presentation. This study will be an urgent plea for intellectual honesty in our SS teaching in admitting that we do not know the answers to many questions rather than presenting human theories as revealed truth. This latter course leads many young people to discard their entire faith when the error of a few such teachings are revealed. The results of this survey are to be assembled for presentation at the Black Hills convention of the ASA in 1952.

Discussion leaders: Everest (chairman) Sinclair, assisted by Rex, Lammerts, Taylor, Spaulding, Keesey, Ratzlaff, and Evans.

### March 10, 1952 Meeting

Subject: Mutual Distrust of Christian Men of Science and Philosophy.

There is considerable evidence of a chasm existing between the thinking of secular men of scientific and philosophic fields. Naturally, this would tend to carry over to the christian scholars of science and philosophy. For the sake of an effective, United Evangelical Christian witness in scholarly realms, this should not be so. It is believed that many such differences would disappear over a conference table—the goal of this discussion. Such problems as the following will be touched upon: Real or implied superiority, conflict of systems of philosophy, ignorance and misconceptions, mistakes of the past, smoke-screens of verbiage, etc. The results of the discussion are to be prepared for presentation to the 1952 ASA convention.

Discussion leaders: (from ASA) Robertson (chairman), Forrester (to be invited), Henry, Ramm, Carnell.

### April 14, 1952 Meeting

Subject: Probability in Scriptural Interpretation.

Interesting and profitable talks have been presented to the Los Angeles ASA group on several phases of this subject. In the discussion of these, several other implications of probability in Biblical exegesis have become apparent. It is felt that this material should be assembled and presented to the entire ASA. A draft of the manuscript prepared by the members named below will be duplicated and sent to a panel of representative pastors, seminary professors, and mathematics specialists in advance of the meeting. Written statements will be read followed by a discussion period. After revision, the paper will be submitted for presentation at the 1952 ASA convention in the Black Hills.

Paper authors: Starkey (chairman), Dilworth, Stoner.



Note: These are to be considered specific assignments to the ASA members listed as leaders and further responsibility in carrying out plans are wholly theirs. Rebellious reactions or even constructive suggestions should be communicated to your program committee at once. It will be assumed that no such communications will be considered evidence of diligent carrying out of the assignments. Hold these three dates open and lend enthusiastic physical, mental, and prayer support and we will have a stimulating year to God's glory. The places of the meeting will be announced.

Program committee: John C. Sinclair, 5749½ Lomitas Drive, Los Angeles 42, Cleveland 6-5208; F. Alton Everest, 947 Stanford Street, Santa Monica, Exbrook 5-5774.

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## New Members

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**Ruth Peachy** a medical student at Hahnemann Medical College, Philadelphia, Pennsylvania, received her Bachelor's degree from Eastern Mennonite College and has taken work at Madison College and the University of Pittsburgh. Her home address is Kirkwood, Route No. 1, Pennsylvania.

**Maurice M. Burkholder** of 3706 Kootenai, Boise, Idaho, received his undergraduate training at Goshen College where he majored in Natural Science. He has since received the degree of Doctor of Medicine from Northwestern University and is now a self-employed physician at Boise, Idaho.

**Robert Donald Knudsen** received his A.B. degree from the University of California at Berkeley with a major in philosophy. He has since received the Th.B. and Th.M. from Westminster Theological Seminary and has taken advanced work in the Union Theological Seminary in New York and the Free University of Amsterdam where he majored in Apologetics. He is now employed by the Westminster Theological Seminary of Philadelphia, Pennsylvania. His home address is 581 Haas Avenue, San Leandro, California.

**Marion M. Bontrager** whose home address is R. R. 1, Shipshewana, Indiana, received his B.A. degree from Goshen College with a major in mathematics. At present he is working with the Navajo Indians in the region of Phoenix, Arizona.

**Raymond H. Brand** received his B.A. degree from Wheaton College with a major in zoology. He also has his M.S. degree from the University of Michigan with a major in biology and is at present a technical assistant in the laboratory of Vertebrate Biology in the University of Michigan. He is working toward his Ph.D. in zoology specializing in the field of animal ecology. His address is 315 East Michigan Avenue, Saline, Michigan.

**Donald England McDowell** received his B.S. degree from Wheaton College with a major in zoology and minor in chemistry. He has since received his M.D. degree from Temple School of Medicine and is now employed by the United States Public Health Service assisting in the Institute of Inter-American Affairs. His title is Medical Officer for Paraguay. His present address is U. S. Embassy, IIAA Asuncion, Paraguay, S. A.

**Wayne Franklin Gfroerer** whose home address is 75 Richardson Road, Melrose 76, Massachusetts received his B.A. degree from Houghton College with a major

in zoology and minor in Bible. At present he is employed as a science teacher at the Ben Lippen School for Boys.

**Kenneth J. Pipenberg** of Park Avenue, Llangollen Estates, New Castle, Delaware, received his B.S. degree with a major in chemistry from Wheaton College. He also has the Ph.D. degree from the University of Illinois with a major in Analytical Chemistry. In addition he has done four years of Post-Doctoral Research at M. I. T. where he had a corn industry research Foundation Fellowship from 1946 to 1950. At present he is employed by the E. I. du Pont de Nemours and Co. Organic Chemicals Dept., Box 525, Wilmington, Delaware, as a research chemist and supervisor of Instrumental Analysis.

**Fred B. Blosser** whose present address is North Webster, Indiana, received the B.S. degree from Goshen College with a major in biology and has also a M.S. degree from Indiana University with a major in Education. He is at present employed by the Tippecanoe Twp. School Board as principal.

**Paul O. L. Carlson** of 156 West School Lane, Philadelphia 4, Pennsylvania, received his B.S. in Electrical Engineering at the University of Illinois. At present he is a staff member of the Inter-Varsity Christian Fellowship.

**Raymond Moore Coddington** received his B.S. degree from Houghton College with a major in physics and a minor in mathematics and psychology. He spent eleven months in the U. S. Navy studying electronics and eighteen months at R.C.A. Institutes studying radio engineering. At present he is employed as chief engineer for Radio Station WPTL—Radio Voice of Providence Bible Institute, 100 State Street, Providence, Rhode Island. His home address is the same.

**Willard Stanley Krabill** received his B.A. degree from Goshen College with a major in natural science. At present he is a student at Jefferson Medical College of Philadelphia where he has spent 2½ years of study. His home address is R. D. 3, Louisville, Ohio.

**James Robert Weir** of 2340 17th Street, Monroe, Wisconsin, received his B. S. degree from Wheaton College with a major in zoology and a minor in chemistry. He has since received the M.D. degree from the University of Illinois with a major in medicine and a minor in psychology. At present he is employed by the Monroe Clinic of Monroe, Wisconsin as an obstetrician.

**Thomas Jenkins Turner** whose home address is F. A. 1 College Road, Durham, New Hampshire, received his B.S. degree from the University of North Carolina with a major in physics. He also has his M.S. degree with a major in physics from Clemson College and a Ph.D. from University of Virginia with a major in physics. At present he is employed by the University of New Hampshire as an assistant professor.

**William DeWitt Pletcher** of 1201 South Eighth Street, Goshen, Indiana, received his B.A. degree from Goshen College with a major in chemistry and a minor in biology. At present he is attending Northwestern University Medical School. His address there is Abbott Hall, 710 N. Lakeshore Dr., Chicago, Illinois.

**Clinton J. Bushey** whose home address is Upland, Indiana, received the A.B. degree from Taylor University with a major in biology and a minor in chemistry. He has since received the M.A. degree from the University of Michigan with a major in biology and a minor in entomology. He received the B.A. degree from Olivet Nazarene College with a major in religion

and the D.Th. degree from the American Theological Seminary with a major in missions. He has done two years of graduate work on a doctorate at the University of Illinois with a major in entomology. He is now employed as an Associate Professor, Head Dept. of Biology at Taylor University.

**Stanley Nelson Davis** of 38 Amoryville 70 Central Avenue, New Haven, Conn., received the B.S. degree at the University of Nevada with a major in geology and a minor in mathematics. He has also received the M.S. degree with a major in geology at the University of Kansas. At present he is a student assistant at Yale University.

**L. Glen Guengerich** received the B.A. degree from Goshen College with a major in biology and a minor in philosophy. He has since received the B.S. degree from Goshen College with a major in education and a minor in English. He has an M.A. degree from the University of Iowa with a major in philosophy and a minor in German. At present he is employed as a farmer and as a school teacher. His home address is R. 1, Wellman, Iowa.

**Robert J. Critchlow** whose home address is 37-A Lee Street, Woodstown, New Jersey, received his B.S. degree from Wheaton College with a major in zoology. He has also received the M.D. degree from Jefferson Medical College. At present he is a physician at the E. I. du Pont De Nemours and Co., Chambers Works Plant, Deep Water, New Jersey.

**John W. H. Glasser** of 3 Bristol Place, Radburn, Fairlawn, New Jersey, received the A.B. degree from Princeton University with a major in chemistry. He also has a M.D. degree from John Hopkins Medical School. He spent seven years of graduate study in speciality (New York Hospital, Norman's Hospital in the State of N. Y.). At present he is working as an associate of Dr. E. G. Waters, a specialist in obstetrics and gynecology.

**John Walthall Green** whose home address is Promise City, Iowa, received the B.S. degree from Iowa State College with a major in horticulture. At present he is employed by the Research Department of Tela Railroad Company as a research assistant in Plant Pathology.

**Dale Enslinger** received the B.E.E. and the B.M.E. degree from Ohio State University. He is at present working for the Battelle Memorial Institute as an electrical engineer. His home address is 436 West Fifth Avenue, Columbus 1, Ohio.

**Richard P. Yoder**, of R. R. 3, Box 48, Bluffton, Indiana, received the B.A. degree from Goshen College with a major in biology and a minor in chemistry. He received the M.D. degree from Ohio State University and took his internship at The Christ Hospital. At present he is a physician with the Taylor Nickel Clinic.

**Roy E. Waite** received his A.B. degree from the University of Michigan with a major in physics. He also received his M.S. degree with a major in physics and a minor in astronomy at the University of Michigan. At present he is a physics instructor at Bob Jones University.

**Alex Hall** of 1270 Vista Heights, Victoria, British Columbia, received his B.S.A. degree at the University of B. C. with a major in agronomy. At present he is an agricultural consultant for the B. C. Electric Company Ltd., Victoria, B. C.

**Wilfred Frederick Kruse** of 1028 Bonnie Brae River Forest, Illinois, received his B.S. in Education at Purdue University. He also received the M.S. degree

with a major in chemistry at Nebraska University. He is employed by the Concordia Teachers College as Registrar and Professor of Chemistry.

**Allen Bennett Ebersole** whose home address is 1303 St. Marys Avenue, Ft. Wayne, Indiana, received the A.B. degree at Goshen College with a major in biological science. Mr. Ebersole is pastor of the First Mennonite Church of Ft. Wayne, Indiana, and is employed by the Mennonite Board of Missions and Charities.

**John Wesley Clayton, Jr.** received the A.B. degree at Wheaton College with a major in zoology and a minor in history. He also received the A.M. degree at the University of Pennsylvania with a major in zoology. He is now attending graduate school at the U. of Pennsylvania where he is assistant instructor in zoology. He is also a research assistant at the Philadelphia Zoological Soc. His home address is 7022 Algard Street, Philadelphia 35, Pennsylvania.

**Arnold Scorza** of 3228 N. Osage, Chicago, Illinois, received the B.S. degree at Wheaton College with a major in zoology and a minor in biology. He has since received the M.S. degree at DePaul University with a major in biology.

**Dewey Carpenter** whose home address is 1504 Jefferson Avenue, Scranton, Pennsylvania, received the B.S. degree in chemistry at Syracuse University. He is now attending Duke University as a graduate student and is employed in the chemistry department.

**Wesley J. Peterson** of 113 South 38th Street, Philadelphia 4, Pennsylvania, received the A.B. degree at Wheaton College with a major in zoology and a minor in botany. He is employed at the U. of Penna. as an assistant instructor.

**D. Rohrer Eshleman** whose home address is Nazareth Hospital, Nazareth Ethiopia East Africa, received the B.A. degree at Goshen College with a major in Natural Science and a minor in Bible. He received the Th.B. degree at E.M.C., with a major in Bible and a minor in natural science. He attended Hahnemann Medical College and received the M.D. degree with a major in medicine. At present he is a medical doctor employed by the Eastern Mennonite Board of Missions and Charities.

**Vernon R. Wiebe** whose home address is 119 Quonset Park, Iowa City, Iowa, received the A.B. degree at Tabor College with a major in psychology and a minor in Bible. He has since received the M.A. degree at the State University of Iowa with a major in physical education. At present he is working toward his doctorate. He is employed as a research assistant at the State University of Iowa.

**James W. Kuhns** received the A.B. degree at Goshen College with a major in physical science and a minor in mathematics. He is employed by the Ministry of Education, Ethiopia Government, Ethiopia, East Africa, as a teacher in chemistry and biological science. His home address is Haile Selassie Secondary School, Addis Ababa, Ethiopia, East Africa.

**Robert Keith Merritt** of 1810 Colfax, Evanston, Illinois, received the B.A. degree at San Jose State College with a major in philosophy and a minor in history. At present he is a graduate student at Northwestern University.

**David Richmond Sheriff** whose address is 157 West Grandview, Sierra Madre, California, attended St. Olaf College and South California. He is now employed as electronic engineer at the Aerojet Engineering Corporation.

**Paul E. Hooley** received the B.A. degree at Goshen College with a major in Natural Science and a minor in history. He at present is attending Indiana University Medical School and is in his third year. His home address is 750 North Tibbs Avenue., Indianapolis, Indiana.

**Donald Lee Minter** of Shepherdstown, Pennsylvania, received the A.B. degree at Goshen College with a major in Natural Science. He is at present in his second year at Jefferson Medical College.

**Robert L. Gering** received the A.B. degree at the University of Utah and later received the M.A. degree and Ph.D. degree at the same place. He is a graduate pharmacist of Army Medical School, Washington D. C. He is at present employed by Bethel College as associate Professor of biology, Chairman of Biology Dept., and Chairman of Division of Natural Science.

**James H. Barnes, Jr.** of 9259 Pierson, Detroit 28, Michigan, received the B.S. degree at Massachusetts Institute of Tech. He is employed as a sales analyst of the Ford Division of Ford Motor Company.

**Leonard L. Lichti** received the B.A. degree at Goshen College with a major in chemistry and math. and a minor in education. He later received the M.A. degree at the University of Nebraska. Mr. Lichti is dean of student personnel at Hesston College and Bible School.

**Gordon Wesley Roberstad** received the B.S. degree at the University of Wisconsin with a major in bacteriology, and later the M.S. degree. At present he is employed as an instructor at the University of Wyoming, Laramie, Wyoming.

**Lou Ellen Rauch** received the B.A. degree at Wheaton College with a major in zoology and a minor in botany. She also received the M.S. degree at Purdue University with a major in zoology and a minor in botany. At present she is employed as a graduate assistant at the University of Tennessee, Knoxville. Her home address is Box 262, Mentone, Indiana.

**Robert William Isensee** of 5036 Art St., San Diego, California, received the B.A. degree at Reed College with a major in chemistry and a minor in education. He later received the M.A. and Ph.D. degrees at Oregon State College with a major in org. chemistry and a minor in physics. At present he is employed as assistant professor at the San Diego State College.

**Grace B. Lefever** whose home address is 1236 E. King, Street, Lancaster, Pennsylvania, received the B.S. degree at Elizabethtown College, and attended Pa. State College where she received M.Ed. degree. She is at present employed by Eastern Mennonite College as assistant Professor of Chemistry.

**Dana Orion Troyer** received the B.A. degree at Goshen College with a major in chemistry. He later received the M.D. degree at Northwestern University. He is employed at the Charity Hospital, New Orleans, La., as an M.D.

**Noah K. Mack** whose home address is 104 W. Broad Street, Souderton, Pennsylvania, received the A.B. degree at Lebanon Valley College with a major in chemistry. He later received the M.D. degree at Hahnemann Medical College. At present he is a medical missionary in the Mennonite Mission, Tarime, Tanganyika Territory, Africa.

**Douglas DeWolfe Robinson** received the B.S. degree at Cornell University with a major in English and a minor in business administration. At present he is a member of the staff of the Young Life Campaign and a licensed minister of the Rhinehart Bible Church, Dallas, Texas.

**Robert P. Wagner** whose home address is 151 Engle Street, Englewood, N. J., received the A.B. degree at Lafayette College. At present he is employed as a clerk at Manhattan Casualty Company.

**Vincent J. Krabill** of Hesston, Kansas, received the A.B. degree at Goshen College with a major in biological science and a minor in physical science. He is an instructor in biology at Hesston College and Bible School.

**Stanley M. Parmerter** received the B.S. degree at Greenville College with a major in chemistry and a minor in physics and later received the Ph.D. degree at the University of Illinois. He is a research chemist for the Eastman Kodak Company, Rochester, New York. His home address is 94 Valley View Crescent, Rochester 17, New York.

**S. Hugh Paine, Jr.** of 10551 S. State Street, Chicago 28, Illinois, received the B.S. degree at Wheaton College with a major in physics and math. He is employed by the Argonne National Laboratory, Lemont, Illinois, as a metallurgist.

**Paul David Drechsel** of 31 Winchester Road, Cresap-town, Maryland, received the B.S. degree at Rutgers University with a major in chemistry. He later attended Cornell University and received the Ph.D. degree. He is now employed as a research chemist for the Hercules Powder Company, Cumberland, Maryland.

**Irving William Knoblock** received the B.A. degree from the University of Buffalo with a major in botany and a minor in biology. Later he received the M.A. degree from the University of Buffalo and the Ph.D. from the Iowa State College. He is employed at Michigan State College as professor of Biological Science. His home address is 4844 Ardmore, Okemos, Michigan.

**Arnold C. Schultz** of 3032 Washington Blvd., Chicago 12, Illinois, received the Ph.B. degree from the University of Chicago with a major in history and the M.A. degree with a major in O.T. Later he received the B.D. degree from Northern Baptist Theological Seminary and Th.D. degree from the same institution. At present he is employed as Professor of Old Testament and Archaeology at the Northern Baptist Theological Seminary, 3040 Washington Blvd., Chicago 12, Illinois.

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## Book Review

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**THE FLOOD** by Alfred M. Rehwinkel. Concordia Publishing House, St. Louis (1951) Dr. Rehwinkel, professor of Church History, Education, Psychology, Ethics, and Theology at Concordia Seminary, St. Louis, is, according to the book jacket, "a dynamic preacher and popular lecturer." This book is presented in the popular lecture style and cannot thus be an exhaustive scientific treatise. In fact the general impression is that the presentation is inclined to be speculative rather than scientific as evidenced by the fact that Genesis 1:31, "And God saw everything that He had made, and, behold, it was good," has been expanded to make a fifty six page exposition on the world before the flood.

The purpose in this volume is a presentation of George McCready Price's flood geology and it falls into the same pitfalls which Price has been stumbling into for years.

The author points to one of the greatest dangers in

the Deluge Hypothesis when in the introduction he calls attention to the fact that many inexperienced young Christians are overwhelmed in the classroom when the teacher gives good evidence that the earth is more than 6,000 years old and that the Noahic flood is not the "most reasonable solution for most or all of the difficulties which confront the student of historical geology," (Page XVII). In this Dr. Rehwinkel is absolutely right for an experienced geologist, whether a Christian or not, can quickly show that these points are untenable in the light of geological field evidence. It does not seem correct, however, for Professor Rehwinkel to state as he does on page XVI that, "Every student of the Bible and of geology knows there exists today a seemingly irreconcilable conflict between Genesis and geology," for if the facts of nature

do not agree with a person's interpretation of Genesis it is time for one to question not the facts of nature nor the Word of God, but rather his interpretation of the Scriptures.

The book is in four parts: (1) The World Before the Flood, (2) The Biblical Account of the Flood, (3) Extra-Biblical Evidence for the Flood, and (4) The World after the Flood.

The arguments are the usual ones offered by Price, et al, and are well presented. Footnotes and references are grouped at the end of the book. The majority of references are to a few rather old books. It is regretted that the references in many cases are not listed so it is possible to refer to the original work.

D. C. Boardman

## The Scriptures and the Scientific Method\*

R. L. MIXTER Ph.D.

Professor of Zoology, Wheaton College

A baccalaureate speaker told this story to impress his audience with an example of heroic self-sacrifice. A blacksmith was resting in his doorway, looking at the street. He saw a mad dog running after a small boy. The smithy rushed to grapple with the dog but was badly bitten while the child was escaping. He knew that in the death throes of hydrophobia, he would likely injure people near him so he forged handcuffs to fasten to himself that his death agonies might hurt no one.

As I heard this story, I thought, "How noble—but how incomplete." There is another chapter to be added by the research endeavors of a leading French scientist. Pasteur believed that hydrophobia affected the nervous system because it developed so slowly after one had been bitten. He reasoned that the causative agent could be weakened and injected into animals to make them immune to the disease. He removed a spinal cord from a rabbit which had died of hydrophobia, dried the cord fourteen days and injected a solution of it into a dog. The dog was unaffected by the injection. Successive injections were given of cords dried thirteen days, twelve days, down to that of a rabbit dying the same day. These injections protected animals who were bitten later from developing rabies.

Pasteur had conquered rabies in dogs—but would his method protect human beings? He was soon given the answer. An Alsatian boy, Joseph Meister, was on his way to school when a mad dog knocked him down and bit him fourteen times. The local doctor could bind the wounds but urged the mother to take the boy to Pasteur for a cure. Pasteur hesitated to try his treatment but two doctors told him it was not only an opportunity but his duty. Hence the injections were given and met with complete success. Not long afterwards, a shepherd lad, Jupille, was bitten while protecting his companions. Treatment begun six days after the boy was injured prevented all symptoms of hydrophobia. (These accounts, and other successes of Pasteur are told in "Health Heros, Louis Pasteur," by G. T. Hallock and C. E. Turner for the Metropolitan

Life Insurance Company.)

Observe that diseases are conquered not by self sacrifice in moments of dramatic heroism but by the painstaking toil of scientists in the laboratory. They make guesses, try out their guesses, and make others if the first ones fail. They keep on until some one is successful. Witness Ehrlich's 605 failures but the next attempt a success so that he named his drug 606. This scientific method is characterized by careful observation, planned experimentation and the deriving of conclusions.

The Scriptures have encouraged this procedure in gaining valuable truth and explanations of experience. This is obvious in what is probably the oldest book of the Bible, the history of Job. He may have been a contemporary of Abraham. Job was in difficulty and distress, he was "down in the dumps" and on the dump heap. In his misery he said, "I desire to reason with God," (13:3). He felt that a direct contact with the Almighty would solve the mystery of his suffering. A modern poet has phrased the idea in this fashion, "What is all science then but pure religion, seeking everywhere the true Commandments?" Job sought the truth and God showed it to him by the scientific method in asking Job to observe natural phenomena and draw conclusions from them. God gave Job one of the earliest examinations in science on record: "I will demand of thee, and answer thou me."

What holds the earth in place? What determines the size of the sea? How are day and night regulated? Why is there cold with its snow and hail and ice? Why are the constellations kept in their constant configurations and rapidly moving stars controlled without collision? "Knowest thou the ordinances of the heaven, canst thou set the dominion thereof in the earth?" These questions were phrased in majestic poetry which digs into the depths of geology, drives into the distances of astronomy, forces answers from physics and calls upon the combinations of chemistry for solution.

Job did not know the answers. His lack of understanding led him to humility and silence. "I will lay mine hand upon my mouth." (40:4). A similar attitude is held by competent scientists. Hear Huxley's words, "Science seems to me to teach in the highest and

\*The Presidential Address given at the Sixth Annual Convention of the American Scientific Affiliation in New York, N. Y. August 28-31, 1951.

strongest manner the great truth which is embodied in the Christian conception of entire surrender to the will of God. Sit down before facts as a little child, follow humbly where nature leads, or you shall learn nothing."

But God had not finished. He said to Job, "Behold now . . ." (40:15): Where is food for the wild creatures? Can you hunt prey for them? Who provides for the raven his food? What is the time when the wild goats of the rock bring forth? Can wild creatures be tamed to do man's will or the wild ox be bound to the furrow? Whose ability made an ostrich swifter than the horse? "What time she lifteth herself up on high, she scorneth the horse and his rider." Did Job adapt the horse to be a companion of Cossacks and cavalymen? "He goeth on to meet the armed men. He mocketh at fear, and is not affrighted; neither turneth he back from the sword."

Many more questions—but when Job had observed these animals and realized how they lived apart from his care or capacities, he knew there was a Power in control of the multitudes whether they were stars or living organisms. "Job answered the Lord, and said, I know that thou canst do everything, and that no thought can be withholden from thee. I have heard of thee by the hearing of the ear; but now mine eye seeth thee." God had used science to bring Job to a better knowledge of Himself, of His wisdom and His power.

The problems presented to Job have been solved in part. The ancient question was, "Whereupon are the foundations of the earth fastened?" And the modern reply is, "Upon gravity." It has taken the reasoning and observing and experimenting of men as numerous as visible stars to come to the answers. The final conclusions of Newtons and Einsteins have opened even more laws to be pondered. The Scriptures called to Job's attention much that he had not recognized and called upon all scientists to be diligent in solving the riddles of the universe. Daniel was commended because he was "skillful in wisdom, and cunning in knowledge, and understanding science." Our Lord said, "Ye shall know the truth and the truth shall make you free." The inspired apostle urged, "Prove all things, cleave to that which is good."

The scientific method is needed today. Those who have read "On Understanding Science" by James Conant, President of Harvard University, will recall the illustrations of how knowledge increases as new machines are developed to search further into the mysteries of nature. In recent times the electron microscope is revealing a realm unseen by our formerly superb microscopes. Remember how the discovery of X-rays opened the world of atomic power.

The apostle wrote in I Tim. 5:10 that one of the good works is to "relieve the afflicted." Because of our awareness of viruses, we may be able to recognize and conquer and the causes of such ravaging diseases as infantile paralysis and encephalitis. Look at the succession of drugs which are wrestling with some of our diseases. First came sulfanilimide, then sulfathiazole, followed by sulfadiazine, penicillin, streptomycin, aureomycin, terramycin and neomycin. Often a new discovery opens new fields for research; in answering one question, we may raise a dozen others.

A knowledge of modern medical science and its methods will protect us from quacks. Dr. A. J. Carlson, physiologist for many years at University of Chicago,

told a group of teachers meeting in St. Louis that one who is untrained in science is a sitting duck for a modern quack. He quoted an advertising slogan

"Goodbye scarf and gloves,  
She'll be wet to her skin  
But the wheat germ in—  
Protects from within."

"It's a lie," he concluded. If we know enough of sound hygiene, we can avoid putting faith in preventives that do not prevent and remedies which do not heal.

Superstition is the opposite of knowledge. Charles Molik, minister from Lebanon, says that in large part Asia's troubles result from the lack of dissemination of the wisdom that rises from the use of the scientific method. Knowledge of the truth frees from the bondage of superstition.

All have enjoyed the comforts produced by engineers and inventors. We use the conveniences with little thought of the research and labor that have produced them. Compare the heavy tents made by St. Paul with the light-weight plastics now carried by the armed forces. Peter warmed himself by a fire of coals; now we have central and radiant heating. Paul capsized in a boat on the Mediterranean, but today he would have traveled in comparative safety. Saint and sinner alike are blessed by the technical advances from modern shops and laboratories. Need it be said that Christians who earn their living in scientific pursuits are helping their fellow men directly and also contribute their share to the support of Christian institutions. If any one may be a layman at all, surely the scientific world is as honorable a place as any other for one to work.

In our moments of relaxation we delight in the progress of recording the great music and art of the past. We may hear great opera on a very cheap radio and listen to a Churchill or a MacArthur in our own living rooms. Twenty pages of Tintoretto's "Life of Christ" photographed by polarized light to avoid glare and the dirt and varnish of four centuries could be bought for twenty cents with a late edition of "Life" magazine.

Science has answered our curiosity. Some of the students majoring in such subjects as literature were asked questions on the Graduate Record examination which they thought quite unnecessary. Why should they know anything about inheritance in the fruit fly? The answer is obvious; by knowing how heredity works in the fly we find how it may work in ourselves. So sometimes the proper study of man is not man but a fly.

A proper interpretation of nature is in harmony with sensible interpretations of Scripture. The symposium of the American Scientific Affiliation, MODERN SCIENCE AND CHRISTIAN FAITH, is an aid to students of both the Bible and Science. It has the advantage over other books similar to it in that its authors have labored in the fields from which they harvested their chapters and others in the same fields gave their criticisms freely so that the possible prejudices of individuals have been dulled by opinions of others.

Any preacher who bases his illustrations on natural laws should take care to see that they are correct. My students often ask me if a certain theory about the blood of Christ is correct. It states that Christ was sinless because he did not inherit his blood from a male parent, who is the only one from whom an ordinary man gets his blood determiners. If I under-



stand genetics correctly and have accurately stated the theological hypothesis, it is biological nonsense. The men of our Affiliation are glad for each opportunity to evaluate the analogies the ministry makes with natural phenomena.

The erroneous conclusions of naturalistic philosophers are evident when they are combatted by that phase of the scientific method which demands that all possible explanations be considered before settling on any one. In the biological sciences evolution is still the most widely accepted explanation for the origin of all living things from a few simple beginnings. It is my conviction that a proper scheme of Creation will explain the facts that materialists have used to try to eliminate the idea of a Creator. I am confident that Christians do not need less science to keep them faithful but will increase in faith as they see more and more of science and how it is consistent with a Purposer and Sustainer in the universe.

Science not only has its advantages but also its limitations. This was revealed forcefully in a report in the Chicago Herald-American in the fall of 1948 as follows: "People of all nations must learn to live together peacefully in a world that science, if not properly used, could destroy."

"This is the challenge issued by Dr. E. R. Weidlein, director of the Mellon Institute, Pittsburgh, Pa.

"The dedication of science to high moral purpose must be preserved. It cannot too often be repeated that well-piloted science can no doubt bring us steadily toward a terrestrial paradise in which want and disease can be banished.

"On the other hand, if directed toward ruinous ends, science can destroy mankind and possibly the very earth upon which we live.

"... Dr. Weidlein ... spoke as a prelude to the opening of the National Chemical Exposition and National Industrial Chemical Conference, held at the Chicago Coliseum.

"Some 200 exhibitors at the Coliseum are demonstrating the 'ultra-ultra' in scientific advancements, which, one is led to believe, can virtually put the housewife and the workman into the 'push-button' bracket of handling their jobs.

"But, behind it all lurked the warning that Dr. Weidlein had given as to whether science will work for good or for evil."

Not all wisdom comes from wise men's heads. "The secret things belong unto the Lord our God; but those things which are revealed belong unto us and to our children forever, that we may do all the words of this law." By faith in revelation we understand much that we might never learn by observation and experiment. If all the users of the products of science had faith in God and did the words of His law, the fears of atomic weapons would be needless.

The types of scientists needed today were suggested long ago by Leander Keyser of Hamma Divinity School. These are his central thoughts with certain embellishments:

"One should be such a good astronomer that he knows all of the stars from Aldebaran to Vega and also has followed the Star of Bethlehem which leads men to Christ. One should be such a good botanist that he would know all of the flowers from Agaratum to Zinnia but should also possess the fragrance of the Rose of Sharon and the Lily of the Valleys. A chemist that knows all the combinations of the elements from aluminum to zinc needs also to be preserved by the Man of Galilee who is the Salt of the Earth.

"It would be sad if one were a zoologist who knew all the animals from Aard Varks to Zebus but did not know the salvation of the Lamb slain from the foundation of the world and did not possess the strength obtained from the Lion of the tribe of Judah. If one were a geologist who knew all the rocks from the ancient to the most recent but did not have his confidence resting on the Rock of Ages he would be lost. The physicist should know all of the forces and light and sound and heat, but he also needs to be illuminated by the Light of the World and have the power that works in the inner man.

"How tragic to be such a good mathematician that one could manipulate all the numbers and yet not be numbered with the great multitude which no man can number that will be singing the praises of our God throughout Eternity."

To be really wise is to recognize that "the fear of the Lord is the beginning of wisdom" and that growth should be in "grace and in the knowledge of our Lord and Saviour, Jesus Christ." "They that be wise shall shine as the brightness of the firmament; and they that turn many to righteousness as the stars forever and ever."

## Sociology and Race\*

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Two news items in recent issues of TIME Magazine point up one of America's most persistent problems. One item related a vicious outburst of violence in Cicero, Illinois. A Negro had been rented an apartment in a white section. The other item stated that 96% of American Negroes and whites worship in separate churches due to segregation policies. I suppose most Americans deplore the ugly violence in the Cicero incident. Yet, how many deplore the more subtle manifestations of discrimination enacted in the religious realm? The zealots who repaired the breach

in the color barrier in Cicero are hardly to be more condemned than those who build it day by day in business, in education, and in the church.

What is the nature of a society in which such widespread group antagonism exists? Since sociologists study such questions, we shall discuss in this paper (1) the general orientation of sociologists, (2) the concepts which appear to be of major significance for the analysis of race relations, and (3) some implications for those interested in reducing racial tension.

The general orientation of contemporary sociologists is that which considers the nature of society as different from the mere sum of individuals who com-

\*A Paper presented at the Sixth Annual Convention of the American Scientific Affiliation in New York, N. Y. August 29-31, 1951.

pose that society. Not that a group is something **other** than the individuals in it, but that the separate individual looked at without the context of family, friends, club, church, school, professional group or labor union, and community is an abstraction unknown to reality. As Charles Cooley has observed, the individual and the group are but two sides of the same coin.

The sociologist elects to study this group aspect. Some typical areas of study are (1) the relationship of the individual to the group (for example, the socialization of the child), (2) the patterns of action of people in groups (for example, the way the usually reserved professor feels led to act at parties and, how he kicks himself all the way home for having indulged in that lowest form of humor: punning), (3) the pattern of group **structure** (for example, such community constellations as the country club set and the people from the other side of the tracks), and (4) relations between groups (for example, the strange honor among thieves when face to face with the minions of the law). This list of typical sociological interests is, of course, not exhaustive.

The interest in recent years in the study of race relations as a problem of intergroup relations is an indication of the growing consciousness of the need to study such relations within a sociological reference. For illustrative purposes we cite the subject of intermarriage of negroes and whites. This has been approached in the past by sociologists and psychologists who make attitude studies. They attempt to probe the behavior and mental processes of individuals isolated from a group reference. E. Franklin Frazier, outstanding negro sociologist, has criticized such an approach as being related only inferentially to the social and economic structure of the white community and almost completely ignoring the social reality called the Negro community and its institutions. He says, "Not only have both whites and negroes been treated as atomized individuals without family relations and social status, but such sociologically relevant factors as the effects of urbanization and mobility upon the character of racial contacts and social status have been left out of account."<sup>4</sup>

In this discussion of the general orientation of contemporary sociologists, we have mentioned how race relations are viewed as intergroup relations. But, what is the nature of this relationship?

The relationship between negroes and whites is obviously different from, let us say, Baptists and Presbyterians—unless the Baptists are Two Seed in the Spirit Baptists from Chicago's Black Belt and the Presbyterians are **First** Presbyterians from Chicago's Gold Coast. It is a quasi-caste relationship that characterizes Negro-white relationships. The color line is a barrier of varying heights in the United States. At some places, in some ways, it is insurmountable. In other places, in other ways there is interaction between unequals, even conflict as the negroes strive for equality. Such a relationship is not typical of caste—for there is not the continual striving for equality of castes. Thus the concept of caste does not encompass all negro-white relationships. Yet it serves our initial purpose of indicating the hierarchical arrangement with facets of segregation and superiority. And, the concept of caste serves a second purpose in providing

us with a point of departure from which we may develop concepts which will apply to the various facets of race relations. By developing precise concepts we may devise analytical tools which will apply not only to negro-white relations, but all ethnic relations.

A definition of ethnic group is in order here. An ethnic group is any group real or **imagined** which is responded to as a racial group. This definition allows us to examine beliefs which the anthropologist tells us have no foundation. Whatever men regard as real in their relations with others—regardless of its scientific accuracy—is fair game for the student of human behavior.

We have noted that ethnic relations often have a caste character, but that caste as a concept is inapplicable to many aspects of ethnic relations. So, we turn to other aspects of hierarchical relations in the community at large as they are delineated by sociologists. Here we find barriers not only between black and white, but between high income and low income whites—a class barrier, between high income Gentiles and high income Jews—a status barrier, between high income controllers of the credit system and high income non-controllers—a power barrier. In other words we find ranking along class lines, status lines, and power lines. The ranking places a few people at the top and increases the number of people as the ranking decreases. The three pyramids often coalesce. Just as often they do not—to the Marxists' confusion.

It is the central thesis of this paper that modern sociology, by viewing ethnic relations in the light of the stratification of the community at large, will open a fruitful research area. I should like to express my indebtedness to Professor Seymour Lipset of the Department of Sociology at Columbia University for the following analysis. Prof. Lipset, of course, should not be held responsible for my version of his lectures.

The three variables of class, status, and power were suggested by Max Weber, the late German sociologist. They are now in process of being refined, but for our purposes their gross form will suffice.

Class for Weber is defined as a collectivity possessing similar life chances determined by the operation of the market in the differential distribution of material property. There is no commitment to a certain number of classes. Nor is there a commitment to class consciousness. Class is an objective fact—income or occupation being the two favorite indices.

Status, according to Weber, is social honor or esteem characterized by a style of life. This is a subjective factor. It is easily seen that one may have high class position but lack the parallel high status. Examples would be Negro professionals, the *nouveaux riche*, and Jewish bankers. Status is used to describe ethnic relations more often than the older term, caste.

Power is our third variable. It is the ability to control the behavior of others. It is usually a derivative of class and status. One, however, does not automatically have power because he has high class and status positions. Control of credit, appointing to public office, decisions by bureaucracies in government administration, labor union leader's strike threats are some of the areas where power operates. We might observe parenthetically that there is no one power control in the United States, but rather a continual battle between labor, business, government, and lesser power groups—including crime syndicates. The coal-

<sup>4</sup>E. F. Frazier, "Race Contacts and the Social Structure," *American Sociological Review*, XIV, Feb. 1949, p. 4.

escence of any of these would pose tremendous problems.

Ethnic differences usually become acute in urban-industrial centers. We shall note three situations in which the class, status, power analysis may be applied. Little research has been done. The following analysis is tentative.

Situation 1. In 1933 in the city of Newburyport, Mass.—the famed “Yankee City” studied so assiduously by Lloyd Warner and cohorts—there was a strike of shoe factory workers. The remarkable thing about this strike was that the strikers’ demands had the public support of the Mayor and many upper income people. Such upper class radicalism is unexplained by the Marxist straight class analysis. What does explain the upper class radicalism is the fact that the shoe factories were largely owned by Jews whose high income put them in a position to seek concomitant status—or social honor. Because the Gentile upper class felt their status in jeopardy they resented the Jews. The Jews had undermined the Gentile status by equaling and even surpassing their class position. Usually the high status groups in the community who cannot prevent the *nouveau riche* from attaining high class, will form exclusive country clubs, develop Gentile lineage requirements for entrance, and so on, which protects their own power position.

Situation 2. In San Francisco the stereotype of the wealthy powerful Jew has a fair basis if anywhere. Yet anti-Semitism is at a minimum there compared to other cities in the U.S.A. And, the Jews in San Francisco are fairly small in number. The small amount of discrimination is explained by the fact that the Jews hold the same high position in class, status, and power. What restrains anti-Semitism is that the Jews have power and status. Others accept them. They were in San Francisco from its earliest times. Thus their power has not forged ahead of their status. It is noteworthy that Jewish conservatism, that is, Anti-Zionism, is entrenched here. This is in keeping with their position.

Situation 3. It is a recorded fact that segregated housing areas for Negroes is a characteristic of Northern cities, not cities of the deep South. In New Orleans the typical pattern is dispersion. The southern whites can afford to jeopardize their economic holdings because the Negro has such a clear and rigidly low status. The contiguity is defined differently in the South. Even wet nursing by Negroes for white babies was and is common in the South. In the North the verbal assumption of equality exists and, here, admitting the Negro to proximity involves opening a wedge in the status area. In the South no assumption

of equality exists—so no status position is jeopardized.

The growth of restrictive covenants in the North grew with the rise of the Negro middle class. Economic mobility upward allowed Negroes to enter into status—which was resisted. Thus in an **open class** system the problem arises frequently. Here is the ambivalence from values of equality of opportunity to status hierarchy of color. The status structure is under threat in an open class system. It is little wonder that economic color lines are drawn often. The capitalistic system is probably the greatest force for destroying closed status hierarchy; but it also leads to great tension between those with status to protect and those with status to gain.

In conclusion I should like to note two problems for those interested in reducing racial tension. You may wish to discuss these.

1. Gunnar Myrdal claims that the race problem is a moral problem. What makes a man avoid the clear constitutional provision freedom and equality for all is the fear of what it may cost him in status, in economic holdings, and in power. But these are legitimate needs. It is only in excess—when they hurt others—that we criticize them. It is not strange that what keeps man from his fellow men is also what keeps him from God. That the remedy is available in redemption through faith in Christ, I believe. What troubles me is why the obstacles which are removed from the relationship of men to God are apparently still operating on the part of many Christians toward their fellow men. The remedy has been applied spottily. I would suggest a stronger emphasis on the absolute necessity of God’s supremacy in every area of Christian life.

2. The second problem is a counterpart to individual redemption. It is social in nature. Individuals may come and go, but the system of class and status arrangements go on. In a social system where upward class mobility occurs frequently enough to threaten the status of entrenched groups tension seems inevitable. Yet this cannot excuse us from present excesses of status protection—that is, when ethnics are deprived of rights guaranteed in the constitution. Of course, one cannot justify a law which forbids a Gentile country club to restrict its membership—strategic as the club is in power decisions. But, in areas clearly in the public welfare, one can ask for legal countermeasures which break the following vicious circle: Discrimination against ethnic groups is justified because they are inferior. A barrier is erected which prevents improvement. The inferiority thus induced supports discrimination.

One may not legislate morals—but one can prevent the implementation of immorality.

## Creation Days\*

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I wrote my paper years ago and many of you have copies of it so this afternoon I shall talk about my paper rather than read it. If any of you do not have copies of this little article on the length of the crea-

tion day, ask at my office. I think we have enough to go around.

While Dr. Young was giving his paper, I sat there saying, “Hallelujah.” I say that not because he’s my colleague but because I thoroughly agree with what he has said in regard to the interpretation of the Scripture and because I feel it so important and so

\*This paper was transcribed from a recording of a talk given at the Sixth Annual Convention of the American Scientific Affiliation in New York, N. Y., August, 1951.

necessary that we should realize the meaning of words. God in His infinite providence has chosen to reveal His Word to us in language, not in a meta-language, not in terms of mathematical logic, but in terms of the usage of words and phrases, grammar and syntax, which have historical context and whose context may change in the process of the generations.

My paper this afternoon is confined to the use of the word "day" or "days" in the Scripture, particularly with reference to the first chapter of Genesis and, as you may suppose, I believe that Moses uses the word "day" in the first chapter of Genesis in a figurative manner. When I say, "a figurative manner" immediately people say, "Well now, just how long were those days?" Well, how long is a figure of speech? What is the figurative use of the word "day?" When you say the day of Martin Luther or the day of George Washington, what are you talking about? Can you put any precise limits on the figurative use of the word "day?" Dr. Young and the Old Testament people study in 46 languages. I heard about an Old Testament man who could actually keep still in 50 languages. That was a great achievement! But any language that I ever heard about has the figurative use of words for periods of time, the figurative use of the word "day."

When you think of your Bible, the phrases "the day of the Lord" "that day" "the last days" "the last hour" come to mind. Christ said, "it is the last hour," when He was speaking to His people there in the days of His flesh. "It is the last hour"—and that hour has already been over 1900 years long. The figurative use of the words for parts of time, the word for "days" ought to be familiar, from the Scripture. We should not have any great difficulty with this concept.

A text that is frequently quoted in this connection comes from the 90th Psalm. "A thousand years in thy sight are but as yesterday when it is passed or as a watch in the night." Some people forget about the "watch in the night" which, depending on whether you are using a Semitic watch or a Roman watch is three or four hours long, or the period of time in the night when anyone stands on watch. Some would say, "A day must mean a thousand years." Why, No! A day is a thousand years or a watch in the night, either one.

Peter says in the first chapter of the Second Epistle, "This one thing must not be forgotten . . . that one day with the Lord is as a thousand years and a thousand years is as one day." This isn't arithmetic at all, but it means that God has plenty of time. God has all the time that there is. Infinite time belongs to Him.

We suppose that Moses wrote the 90th Psalm. We have every reason to believe that the tradition is correct. The 90th Psalm refers to the great eternity of God. "Thou hast been our dwelling place in all generations, before the mountains were brought forth. Or ever thou hadst formed the earth and the world, even from everlasting to everlasting. Thou art God." The great eternity of God, "before . . . or ever thou hadst formed the earth and the world."

Turning now to the first chapter of Genesis, we note what Augustine pointed out. Augustine could not be accused of interpreting the first chapter of Genesis on any geological presuppositions. He was simply giving what he thought Moses meant. Augustine said these days could not possibly be 24-hour days because the sun, moon, and stars were not given into the firmament of Heaven for times and seasons and days and years until within the fourth day. The solar day

system was not set up until within the fourth day. Augustine saw that long, long ago. It was within the first "day," the day-night series was set up. It was within the first "day" that God created day and night by dividing the light from the darkness. It was not until the fourth "day" that the sun began to govern periods of time.

One of the most clear evidences of the figurative use of the word "day" in the first chapter of Genesis is in Genesis 2:4. "These are the generations (the word generation here means "stories about") the heavens and the earth, in their being created in the day of the making by Jehovah God heaven and earth." It's all one day. Now how long were the days when six days equal one day? If you're speaking figuratively then clearly six equals one, because you're simply taking a different figurative perspective. There can be no way to escape it that later Moses refers to the entire period of six days as one day.

In the fifth chapter of Genesis, there is another reference. (I don't claim to be a Semitic authority. I studied Hebrew and I still study Hebrew to some extent. Dr. Young is our authority here.) But here you have it in Genesis 5, where God created Adam . . . "And he called their names Adam." The plural pronoun ending is given here. "He called their name Adam in the day of their being created." There in the fifth chapter of Genesis also you have the creation record referred to as one day. Actually this one verse might refer only to the sixth day of creation, but it seems more probable that it is a general reference to the whole creative record.

I should like to add just this to what Dr. Young said. He may not agree with me in detail. We have academic freedom here, you know. We don't have to agree on every detail, but the creation of Adam is referred to in the plural. They are the Adamases. There is the theory, you know, that some of these names may be names of dynasties or names of households. We know that that is the Hebrew usage. It sometimes is difficult to know whether you are talking about one individual man as we would speak of an individual man in the practice of our western language or whether you are talking about a household. In the prophecies of Ezekiel, it seems very clear that the dwelling of Israel under David, their king, does not refer to David as an individual but to the house of David and to Christ as the son of David. So here the creation of Adam is referred to in the plural and there are, I think, other suggestions that possibly many of these names in the fifth chapter of Genesis may be names of households.

Furthermore, as Dr. Young so ably brought out there obviously are gaps in the story. The farthest thing from Moses' intention was to allow us to figure out a connected chronology. The scriptural attitude toward chronology as Melvin Grove Kyle shows, (see his **Moses and the Monuments**) is to present great events, great epochs, great concurrent or great successive events, and then to emphasize spiritual principles. Compare the genealogy of Christ in the first chapter of Matthew, observe the obvious and intentional gaps. This illustrates the Jewish usage in such matters. The Old Testament simply does not give us any data whatsoever with which to figure the antiquity of man upon this earth.

Summarizing then the evidence for the figurative use of the word "day", Moses, in the context, at least once in the second chapter and I think again in the fifth chapter, refers to the entire period as one day.



In the 90th Psalm he refers to God's time by way of contrast with our limited measures of time. In the New Testament the word "day" is frequently used figuratively and the chronology is obviously and intentionally discontinuous.

I submit therefore that in fairness to the Scripture, not in riding a hobby or trying to work out some pre-supposed idea of our own but in fairness to the Scripture, we should take the usage of the word "day" as figurative in the reference to the "days" of creation. Obviously Moses points out certain great facts,—God created the Universe. He created the light and the darkness. He brought the dry land up above the waters. He brought the vegetation. He brought the various orders of life, and he created man in His own image. These great days of creation overlap, obviously. There is no measuring of them. Moses is using the word figuratively and it makes perfect sense to read it in this light.

#### Discussion

Dr. I. A. Cowperthwaite: This paper by Dr. Buswell is now open for discussion.

Dr. H. H. Hartzler: With reference to the argument that the word "day" may be a longer period of time as evidenced by the fact that the sun was not created until the third day, I would like to submit that surely if we are going to have vegetation on this earth that the sun and the present order of day and night existed before day 3. How could you envisage several million years existing, during which we had all these things, vegetation, plants growing with no sun? Certainly in the fourth day when the sun is said to be set for these functions it means that the sun is then visible.

Who, in this audience, would be aware that the sun exists if clouds hung over the sky all the time? You would still be aware of day and night. You would not be aware that the sun exists, nor the stars, nor the moon. It certainly seems, in all fairness to the Scriptures, that we should suggest, as has been suggested before, that this just means their appearance.

I would also like to add a point on the usage in chapters 2 and 5 of the "days" as being an extensive period of time. It does not say in my Bible, as I read it, that the word "day" in chapter 2, verse 4 refers to the total creation. It says, "the creation of the heaven and the earth," not necessarily the appearing of dry land or of plant life, cattle, and man. Likewise, in verse 5, certainly that refers to only one of the specific days.

Dr. G. D. Young: For a long while there was a psychological block in my mind, in understanding biology . . . I had some in college! I was a biology major and our school was entirely devoted to the theory of evolution. There was a psychological block in my mind in the matter of understanding that record and the record of the Bible. I was a little surprised to see that in our own Symposium (Modern Science and Christian Faith) that that which caused that block still exists. We have a chart there . . . Day 1, Day 2, Day 3, Day 4. I have been trained since I was very small to see those as necessarily chronological and quite likely of the same approximate duration. I think that when that volume is re-edited that that which caused this psychological block could be removed. It should be pointed out that these days are not necessarily successive.

Obviously the fourth day in which the sun, moon, and stars were made to appear is quite a different

sort of a day from one of the other days such as, for example, the third or the fifth. Yet when it's put in the way it is in this chart we can not very well expect our boys and girls in high school to receive it in any other sense than that of successive periods of equal length. We are perpetuating that psychological block. Those days could, and doubtless did, overlap. If we are interested in harmonizing the Bible record and geology, we know that some of the things that were made on the fifth day existed also on the third day. That is, the geologic strata where the third day items appear predominantly also contain the fifth day animals. To sandwich the fourth day of equal duration in between and split up days 3 and 5 makes a psychological barrier that need not exist. I think we should be very careful in how we set up such charts in the next issue of the Symposium. That is why I was glad that Dr. Buswell got to the point before he stopped his message.

Dr. J. O. Buswell: With reference to Genesis 2:4, I think the key is not merely in the word "day" but in the pronoun with which the phrase is introduced. In English . . . "These are the generations of" . . . the antecedent of the pronoun has a clear and obvious literary meaning if we take it as referring to all that goes before. You have a structure in orderly style, an introduction . . . "In the beginning when God created the Heavens and the earth . . . (so and so)." And then you have a conclusion, "These are the generations of the heavens and the earth in their created." So it is the pronoun which must be studied.

What does he say was done in one day? It seems to be a summary of what goes before and I think I made it clear that I do not hold that the sun was created in the fourth day but it began to function for days and years. That is an explicit statement. The word is *nathan* "and he gave them into the firmament of Heaven for times and for seasons and for days and years." That is to say that when the sun was invisible behind the bank of clouds, you couldn't exactly have a calendar or at least it would be complicated and difficult, but on the fourth day he gave them into the expanse of Heaven to function for times and for season and for days and for years.

Dr. D. Block: It seems obvious that our discussion of Genesis 1 is to arrive at an acceptable way of harmonizing so-called geological time, be it long or short, with the Biblical chronology. Is that not so?

Dr. J. O. Buswell: No! It is to bring out what Moses said and what Moses means and then afterwards to study geology. But our only question here is whether or not these days were, in Moses mind, 24 hours or periods of time of undesignated length.

Dr. D. Block: Allowing that these days are of varying lengths of time, man was created then during the sixth period of time. However, God saw fit to bring that about. Apparently He was in the process of creation and came to completion at the end of the sixth day or period. Then we read that on the seventh day God rested from all the work that He had made and then further on that Adam lived so many years into supposedly recorded time. In all told the years of Adam were 937 years and he died. Now, I am just naive enough to feel that Adam was brought to completion within the sixth period of time. He had to live within the seventh period in which God rested and into another length of time. With this answer I know you will think that we are still in that seventh period of time and God is resting and that, for me, is

impossible, because that means God provided his redemption in the Lord Jesus Christ on the cross of Calvary during the time when he was said to be resting. He was, if that be true then more busy or working harder in creation than in providing redemption and to me that doesn't mean to be the burden of the Scripture. Now you see the problem I'm facing. How old was Adam when he finally died . . . 937 years or 937 plus one more eon? Thank you.

Dr. J. O. Buswell: I think that question is adequately answered in the pamphlet. The Scripture says in Hebrews 4 that we are now offered the privilege of entering into the "rest" which is referred to in Genesis 2. Quoting Genesis 2, "God rested." The invitation is given to us to enter into the precise "rest" so that according to the author of the Epistle of the Hebrews God is now resting in a sense which is specified in Genesis 2. What is the sense in which God rested? He rested from His work of creation, "from all His work which He had created and made." Between the ending of the creation and the ending of the millennium, (Some of you may not think that there's going to be a millennium but you'll be surprised! It'll be a happy surprise too. You'll be there.) God is not creating. He will then create a new universe. He is not creating now though the work of redemption and providence goes on. The seventh "day" of Genesis 1 and 2 is the age between creation and the new heavens and the new earth. The seventh "day" is a figurative day but Adam's years are evidently literal years.

Dr. Roy Allen: The Scriptures very definitely say that God created the light and then it says that he called the darkness night and the light day, so, if that were a solar day, the period of darkness involved from Genesis 1:1 until God said, "Let there be light" must have been only of 12 hours duration. It seems rather that that was an indefinite time; the darkness at least, so that if the night were longer than 12 hours, then the solar day must be longer than that. So putting these all together, I think that the position that Dr. Buswell has taken is pre-eminently scriptural and I heartily agree with him.

Dr. Norvell Peterson: You know, like Michael Angelo said, the fundamental unity and nonessential charity, and I observe that we have both, are here. So on such a culture I would like to submit another view which I won't be at all arbitrary or dogmatic about, but it sounds very nice. I think that God is, if anything, orderly, and I think God, through the Holy Spirit, recorded something here, and what we are trying to do is to get at what it is. Now I suspect that these days were a thousand years, as Peter said, all of them, and I'll tell you why. I mean it just sounds reasonable.

In the first place God worked for six days and on the seventh day He rested. Now he (Adam) lived almost a thousand years, but with the death of Adam, with the translation of Enoch, we start another day. Then we come on down another thousand years and what happens? Abraham is born and we start another day. We come another thousand years and what happens? The dynasty of Israel was established; David becomes king. We come down another thousand years and what happens? There's Calvary. Another thousand years and we come into the time just before the Crusade which brought about the Reformation along with other things beginning the consummation of the corruption of the sixth day. God has been

working very hard for the prior 6,000 years to take care of us. Then He's going to rest. But when is He going to rest? In a thousand years we'll have another day. That will be God's day of rest. And that's the way I like to think of it.

Mr. Karl Turekian: This is all very nice but where do you get any basis for two weeks . . . it's 14 days which are going on now. The first seven we can argue about because it's written down in the Book. With the consideration of the last seven you've become more than a mystic and are not on scriptural grounds. I don't think you have any right to assume that it is a thousand years for a day. I think we would have to discount the whole thing that you said as far as any scientific basis goes.

That's about all I can say because it's truly philosophical and has no place in a scientific discussion of "days" at all.

Dr. J. O. Buswell: I skip the question, "Why couldn't God do it faster?" And all I need to say is that no one has said what God could do. The question is, "What did Moses say . . . what did Moses mean?" God could make it all realistic and make it look like a thousand years or a million years but God probably didn't do that.

Mr. W. Pass: It hadn't quite crystallized in my mind but it seems from the standpoint of geology we have been forced to make some investigation as to what Moses actually said and the historical point of view on the point of time which has been stretched into an indefinite period of time. Is that correct?

Dr. J. O. Buswell: I don't think so. I don't think that's the process of thought at all.

Mr. W. Pass: What I had in mind . . . we've seen in the geological problems that arise that we are forced to a more indefinite time for the days. If I am misrepresenting your position I'd like to be clarified on that because I feel at the other end when we come to the day which man was created, we seem to lean to a point period. That is, if it were a long period of time when man was created then we are playing into the paleontological evidence of the anthropologist or paleontologist himself who also is interested in the indefinite period of time for the creation of man. Would you comment on that and clarify my thinking.

Dr. J. O. Buswell: I think we must clear ourselves from ascribing eisegetical motives to us Biblical exegetes. I very diligently avoided anything from geology. The first hundred years in the millennium, I'm going to look up Larry Kulp and I'm going to get him to teach me some geology. I'm going on a trip tomorrow all day and I'm going to learn some geology, but I don't know any geology. I do know a little bit about how to read the Scriptures. This problem as to the meaning of those days did not originate with modern geology. I pointed out the opinion of Augustine, who certainly antedates any of our modern geological data so far as scientific correlation is concerned. Augustine brought up the problem.

The early church fathers had a tendency to run into weeks. The number 7 in semitic usage is a round number and it suggests perfection or well-roundedness. You'll find in Hypolytus and Ireneus and a dozen or so of the church fathers that the history of man is going to be 7,000 years long. Because John refers to a thousand years of blessedness, well, click, that refers to a sabbath. So you've got to have 6,000 years before. Many of the fathers, however, got in 5,000 years before Christ for some reason or other

and then in the year 1,000, you will remember from your church history, there was a great stir through Christendom. They said, "This is the end of the week, this is Saturday night and the Lord's return is going to come." In the year of 1,000 people all over Europe sold their property. They did just the same thing the Millerites did in about 1830, you will remember. They figured out the date the Lord was going to come . . . the millennium was right here. That tendency to put things in sevens is a very common tendency. It goes clear back to the Greeks in the fourth century, B.C. They used allegorical numbers in interpreting Homer. The tendency crops out all of the time in Christendom. People like these numbers, you know. They go on and on with the analysis of numerics.

Sober exegesis has always been opposed to mere speculation. I think we should emphasize the fact that the argument as presented was not based upon any motive other than the historical, grammatical exegesis of what Moses did say.

Dr. G. D. Young: I think the block in our thinking here is our Indo-European usage in which we link time with the word "day." My specialty, if I have one, is semitic poetry. I see it in the poetry of Ugarit preeminently, in the Egyptian poetry, the Babylonian poetry, the Syrian poetry, and in the Biblical poetry. It's all through here. Everything that's worth happening, if you're going to tell it in poetic languages, has to happen in sevens.

Baal had no house. He sent for the deities and one day they brought bricks and straw, and on day 2 they brought bricks and straw and on day 3 they brought bricks and straw and on the seventh day it was there. On day 1 the bricks and the straw were consumed by fire, on day 2 they were consumed in fire, and on the seventh day, lo and behold, it comes out silver and gold. Moses is painting a great picture here—this is how the lights came on, and this is how the birds that fly, and this is how the things that swim in the water came on, and the things that creep and at the end of it all, there is man. We ought to divorce in our thinking, I'm quite sure, the idea of minutes and seconds from the usage of the word "day" in the semitic context of this chapter.

Mr. J. Watson: I am persuaded in my mind that we should avoid the Greek concept of symmetry in our thinking and that is why I think of this as a Hebrew problem. To answer Mr. Peterson, I would quote a theologian, Calvin by name, that it's poor exegesis to hang any doctrine of Scripture upon one point, and I would quote Dr. Buswell as saying that a day is a thousand years with the Lord and also as a watch in the night. Now, I think, you would only find one Scripture verse—that one in Peter—to support such a doctrine. On the basis of exegesis I think it is a very poor conclusion.

Dr. J. L. Kulp: If a geology student may be permitted to come onto the platform on biblical exegesis for a minute, it is very gratifying to me to hear this dissertation this afternoon purely from a Biblical, theological point of view. For I think that Dr. Buswell is intellectually honest when he states that this interpretation is what he thinks is the best Biblical interpretation independent of any physical evidence. Now it's very nice to be able to be comfortable in a particular view of interpreting Genesis and maybe a thousand years concept may be comfortable to some. Whether it's comfortable or not has relatively no meaning. What we should be interested in is whether

it is true. Therefore, since this is a scientific gathering, we might as well add the P.S. that Dr. Buswell's is possibly the best Biblical interpretation, I think that anybody who has studied geology very carefully, will be ready to admit that it is the only possible interpretation, broadly speaking, that can be harmonized with geological science.

Dr. Coleman: I just had one verse in connection with the point that was brought up about the sabbath which I think is worth contributing in John, chapter 5, verse 16 . . . "Therefore did the Jews persecute Jesus and sought to slay him because he had done these things on the Sabbath day. But Jesus answered them, "My father worketh hitherto and I work." I think the question was raised as to what happens to the seventh day that God rested if you consider them not as days but as periods. The verse in John would clearly seem to indicate that the Sabbath was broken, as Dr. Buswell suggested, at the time of the fall of man through sin and then the greater work of the redemption began, so that you have whatever definite period would exist there and then the work of both the Lord and His Father in the great work of redemption of man began.

Dr. A. Eckert: I would like to ask one question and that is—What did the Hebrew scholars think of the interpretation of these days? Do you have any record of their exegesis in this part of Genesis?

Dr. G. D. Young: I think we have the analogic type of thing when they refer to the history of the world by thousand year periods. They had that thousand year concept and so they divided the history of the world into thousand year periods. I do not know whether they applied this method of interpretation to the creative days or not. In one method of Jewish exegesis it would not be impossible to so take them.

Dr. I. A. Cowperthwaite: Did you have a final summary, Dr. Buswell?

Dr. J. O. Buswell: Yes. I am sure Dr. Young was referring to the rabbinic tradition, not to anything in the Old Testament period, nor anything that comes to us with any New Testament authority. The rabbins followed this kabalistic system of numerical interpretation, and you simply do not have scientific exegesis in the kabalistic literature anymore than you have in Philo, Alexandrinus, and the way in which he interpreted things, imposing a numerical philosophy upon the plain language of literature. The Bible-believing Jews in the time of Christ do not give us anything to indicate that these days were regarded by them as a thousand years.

But it is the Hebrew prophets to whom we look for a true exegesis of the books of Moses, and they are constantly pointing to the spiritual principle but there is nothing in Isaiah or any of the later prophets to indicate that they regarded these days as thousand year periods or that they regarded them as 24-hour day periods. As to "my father" working, Dr. Allen says he thinks that God rested because he had nothing more to do and then sin came in and he had to go to work again. Of course, I can appreciate that way of looking at it, but it doesn't fit my Calvinism at all. I cannot think of the Lord God almighty as idle. When we have the new heavens and the new earth, they that are holy will be holy yet more and those who are in the lake of fire will be filthy yet more. Its a progressive dynamic universe from start to finish and I would only re-emphasize the fact that the Scripture says not that he folded his hands and sat there

and took a nap. No! God did not become idle. I'm not idle on the Lord's day. Any Christian is not idle on the Lord's day. God stopped his work of creating. That's all the work he stopped. The work of providence always went on. He took pains to go down and walk with Adam in the garden and talk with him and commune with him and reveal Himself to him. God's work of providence always went on and God's work of redemption began the very minute that sin came into this world. Christ, in John 5 is referring to the providential work of God which always goes on. The answer is equivalent to saying, "God works on the Sabbath day in His work of providence and in his work of redemption, and therefore, although the law of the Sabbath is clear and we need this day of rest, the work of redemption and God's work of providence has to go on."

When God gets through with this earth He will cast it aside and make another one. Then will begin a work of creation . . . "I make all things new." He will create a new heaven and a new earth. God rests from the work of creation, from the end of the creation in Genesis on until he creates a new heaven and a new earth. God never rests from all activities.

Dr. G. D. Young: (This discussion by Dr. Young was in connection with another paper not offered for publication. It is placed here because of its contribution to the subject discussed above.—Ed.)

I wouldn't bring this up except it has come into the discussion at two different levels and I have heard it also brought up in the Society of Biblical Literature where most of the folks do not accept our conclusions. It is the problem of the making of the sun on the fourth day. It was for a long time a problem to me, and apparently it still is a problem to some. It has already been pointed out that the world "made" in the statement that the sun was made on the fourth

day is a word that is used a little over 2,000 times in the Hebrew Bible. Its meaning ought to be well known. 1500 of the occurrences, or more, should be translated "do." It is, as a point of fact, in the standard Hebrew dictionary given with the word "do" 1500 plus times. And about 500 times it is rendered "make." Among those occurrences with the meaning "to make" there are several very interesting ones. One man came in from a long hunt and I think the king summoned him in or something like that and he hadn't had a shave for a long time so he "made" his beard. He prepared it. He trimmed it. He didn't make it "de novo."

On another occasion, a lady "made" her toe nails. She didn't make them at that moment. She prepared them in the prescribed manner for whatever social function she was about to engage in. That is the way the word rendered "to make" is used. We shall couple with this the fact, as Dr. Buswell pointed out, that it is associated with the word "natan" which means "to set" or "to put" for some purpose. On the fourth day the sun was prepared and set for a specific function. The Hebrew would not support the idea of the making of the sun on that particular day. That illustrates the simple answer to many of the alleged problems that we meet and the problems that are alleged from some points of view to exist in the creation story. I'd like to take this opportunity to put into the record something that's a very deep conviction in my heart. I know the geologists do not want me telling them anything about their science. Yet my hair stands on end as a theologian sometimes at some of the things I read in the A.S.A. Journal concerning the meaning of Hebrew words and Biblical concepts. I would like to suggest that our strength may lie in our united action. There's a very real danger that since we are among wolves if we do not hang together we will hang separately!

## The Role of Segregation In the Theory of Creation

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As Doctor Barnes pointed out so ably at the Grand Rapids Convention, the way to combat a false theory is to build up a better one in its place. The theory of creation needs to be built up carefully and firmly, part by part, and this paper deals with one of the parts.

The broad meaning of segregation is a separation or moving apart of different sorts of things or entities. It is the opposite of amalgamation or fusing. In the genetic sense, in which the word is here used, it mean separation of characters which have been together in a plant or animal, so that in the next generation one of these characters is in one individual and the other in another. For instance a Shorthorn cow may be hornless and roan colored (roan being caused by a mingling of red and white hairs). A calf born to her this year may be horned and roan while another born later may be hornless and white; or a calf might be hornless and roan like the mother. In the first two examples of offspring there has been segregation of characters while in the third there has been none.

As an example in plants, consider garden pea seeds that are yellow in color and spherical in shape. Some of the offspring may be yellow and wrinkled, some

may be green and spherical, while still others are likely to be like the parents, spherical and yellow. Again the first two examples illustrate a separation or segregation of characters that have been together but now are in different organisms.

It is readily seen that this diversity would not arise if there were no latent possibilities in the germplasm of plants and animals. The cow mentioned first had no horns yet she had had a potentiality for producing horns, as evidenced by the fact that horns appeared in some of her calves. Likewise the peas had latent hereditary factors for green color and wrinkled shape. These latent and recessive factors are not found in all organisms, but usually have come from a grandparent or more remote ancestor which had not only the hereditary factor but the actual character. An animal or plant that has such a diversity of hereditary factors is termed heterozygous. On the other hand there are some organisms that have no factors except for the characters they themselves manifest. If such peas are yellow and are mated with yellow peas, all the offspring will be yellow. Such a germinally pure plant is termed homozygous.

Biologists find these terms very useful, and while



they are big words there are no shorter words with the same meaning. The word **mixed** may not mean the same as **heterozygous**, for we could have a mixture of kernels of yellow and white corn, both of which were homozygous for color.

Since every organism is a collection of many characters with a hereditary factor or gene for each, when characters segregate from each other they do not remain alone. They become members of new pairs or groups in the young plant or animal. Thus the term recombination of characters has about the same practical significance as segregation of characters. The words are not synonymous however, since one refers to the separation of traits and the other to the formation of new groupings in the next generation.

The best place to observe the above phenomenon is the offspring of organisms that have been crossed; but not so much the first filial generation as the second and succeeding generations. Crossing of varieties makes the first filial generation very heterozygous; and these plants or animals in turn, without further crossing, will manifest segregation and recombination of characters in succeeding generations.

It is possible to point out how this process is germane to the theory of creation, now that the process itself has been explained. We observe the heterozygous first filial generation segregating, thus giving rise to new combinations of characters, which we call new varieties. What if God created his creatures heterozygous in the first place? There is every reason to think that He did just that.

This means that in each kind of plant or animal created at the beginning there were a number of hereditary factors for traits that were not expressed in the original creatures, but since that time have expressed themselves by forming traits in the descendants of the original creatures. Thus in the people who were created there were hereditary factors for round heads, long heads, straight, curly, and kinky hair, various shades of skin pigmentation, high foreheads, sloping foreheads, supra-orbital ridges, and so on. Which of these traits originally were expressed and which were latent is unknown at the present time. In the original cattle were hereditary factors for red, black, white, and other colors, a series of cumulative factors for milk production and another series for degree of beef type, etc. Lack of horns, called the polled character, seems to have arisen by mutation, which is different from simple segregation and will be explained below. In the original rock dove, if it be proved that from it have sprung all the domestic pigeons, were hereditary factors for fan tail, homing instinct, and others that are no less remarkable.

If organisms were created heterozygous in the first place the different potential characters would be sure to segregate out in succeeding generations. It is easily observed that inbreeding of heterozygotes gives rise to segregation; as for instance, mating animals of a first filial generation among themselves. Since we suppose that the Creator formed only a few of each kind of creature, of course the result was in breeding. Relatives had no choice but to mate with each other.

The occurrence we are attempting to explain by this discussion of segregation is the appearance of varieties and breeds of plants and animals. It might be claimed (a) that these varieties have always been as they are now (b) that the environment developed them, (c) that they arose by mutation, or (d) that they are the

result of segregation. The first suggestion is not tenable for many new breeds and varieties have been developed by man and others have appeared in nature. The second suggestion is that of J. B. Lamarck who said the giraffe got its long neck by stretching it to reach leaves of trees, and the duck developed the webs of its feet by stretching its toes apart. In this of course he overlooked the creation of diverse hereditary factors as well as segregation. This theory, known as the inheritance of "acquired characters" is in poor repute among the best scientists because it can not be made to work under observation. Different types of environment may indeed cause much diversity, especially among plants, but these changed characters are not passed on to the next generation and do not occur again unless the peculiar environment occurs again.

As for mutation, there needs to be an extensive study made to determine which characters have arisen by this process and which by the segregation of latent factors implanted at the beginning. Unquestionably the best known mutant characters are those that have arisen under observation in the laboratory and breeding plot. These are characteristically a loss of something, usually are negative entities, a majority are lethal, and few if any have been shown to enhance the welfare of the plant or animal. To be sure, a mutant character that is transmitted follows the law of segregation like any other, but at its beginning it arises *de novo*. The majority of the characters that make up our organisms do not bear the ear marks of mutation. Thus we conclude that it is not environment nor mutation but segregation of characters that is largely responsible for the observed diversity of varieties.

In the mind of the Creator there must have been some purpose in making provision for these changes in characters. While we can not be certain what that purpose was we can make a good estimate. His command was, "Be fruitful and multiply and replenish the earth." As the kinds of creatures spread to new regions, replenishing the earth, they encountered changed environments. A species that is perfectly uniform might become extinct in a new environment, while if it had segregated into different types one of these types might survive. From the standpoint of nature it is not so serious for individuals to die, since they can be replaced by progeny from the surviving stock; but if a whole species is wiped out it is lost forever.

In stating the theory of this paper the author makes no claim to originality but is merely voicing what is commonly believed by creationists. It is here explained in simple language for those scientists who are not trained in genetics.

In conclusion we are quoting Genesis 1:27 with a few words of clarification added: "And God created man in his own image, in the image of God created He them;" heterozygous created He them.

We are happy to announce that Monograph three has recently come from the press. This monograph written by Dr. Frank Allen is entitled "The Eye as an Optical Instrument." Dr. Allen demonstrates that even though the eye shows all the defects common to optical instruments, yet it has been so designed by God that it appears as one of the most efficient of all such instruments. Copies may be obtained from the office of the secretary. The price is thirty cents per copy or twenty cents per copy in lots of ten or more.