

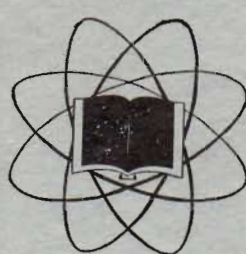


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of the

AMERICAN SCIENTIFIC AFFILIATION



The fear of the Lord is the beginning of wisdom. Psalm 111:10

Volume 4

June, 1952

Number 2

The Journal Of The American Scientific Affiliation

Vol. 4

JUNE, 1952

No. 2

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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.

EDITORIALS

Those of you who are regular members of the A.S.A., will have noticed by the recent preliminary program sent to you on May 16th from the office of the Secretary-Treasurer that we are planning to have a discussion on Tuesday evening, August 26 on the topic, "Conflicts Within the A.S.A."

For a number of years some of our members have been suggesting that the A.S.A., should have a united front on controversial subjects. However, it has been the feeling of the Executive Council that this is not a proper aim of the A.S.A., rather, we should attempt to present possible solutions on topics of interest to our group. We do not claim as a scientific organization to have the final answer on any given subject in the area of science and certainly we are not given to just one interpretation of Biblical statements. Therefore, it was thought desirable by some of us that we should have an open discussion on this general area seeking by the help of God with the guidance of His Holy Spirit for the best solutions to the difficult problem of trying to smooth out those difficulties which constantly arise in our group.

You have all received copies of "The Creationist" edited by Dudley J. Whitney of Exeter, California. In this publication, Mr. Whitney has repeatedly attacked the A.S.A., for its supposedly unchristian point of view on many issues. I am not certain how many of you are in full sympathy with Mr. Whitney, but it appears to some of us that many of his statements are without any basis in fact. We feel that he has taken an uncharitable viewpoint and that he is not always strictly scientific. In fact some have doubted whether one might classify him as a scientist.

A number of our members are wholly committed to the modern point of view with regard to the general subject of geology. Some other incline to accept the point of view commonly known as "Flood Geology." Mr. George McReady Price is the acknowledged leader of this latter group. Now it is not the policy of the A.S.A. to officially decide which is the correct point of view; rather we should investigate both as possible solutions to the subject. The same principle holds in any other area of science. The purpose of this editorial is to have each member of the A.S.A. carefully examine his own views, compare them with statements which have appeared in our literature and send any criticisms or suggestions which you may have to the office of the Secretary-Treasurer.

We urgently ask that you do this within the near future so that your comments may form an integral part of the discussion to be held this coming summer at our annual convention.

News Notes

A short article on "The Bible and the Earth's Shape" by Carl S. Wise appeared in *Science* 113, 128 (1951). The author points out Scripture references to the early shapelessness of the earth, its later roundness, its rotation, and its coming destruction, but with the

salvation of some of its inhabitants. Mr. Wise is an applicant for membership in the A.S.A.

A letter from Mr. Roy Shaffer in Kijabe, Kenya, in Africa states that teaching Science, Geography, and Mathematics at R.V.A. has been keeping him busy and he is expecting to set up Biology and Physics next year. The school's cornerstone was laid by "Teddy" Roosevelt in 1909. They are also busy installing a 32 k.w. electric plant as well as wiring houses, buildings, etc. Roy Jr. made his appearance at their home November 3.

The Executive Council has held two meetings since the last issue of our journal. One April 16, Roger Voskuyl, Harold Hartzler and Delbert Eggenberger our editor, met for a meeting in Chicago. Russell L. Mixter had planned to meet with us but was detained in Kentucky by an automobile breakdown. He had been on a trip to Florida with some students during the Easter holidays. At this meeting we visited the office of the Christian Medical Society, 64 W. Randolph Street. There we talked over with the executive secretary, J. Raymond Knighton, the possibility of combining office space as between the A.S.A., and C.M.S. It was felt as for the present we should keep our present system but perhaps in a year or two we might form some arrangement with the Christian Medical Society. The location of future annual convention sites was discussed at this meeting. At the present we have invitations from Gordon School of Theology, Boston and from Jim Reyburn of Young Life at one of their Colorado ranches. It was felt that the 1953 convention should be held somewhere in the mid-west district. At the second Executive Council meeting held in Chicago, May 24 there were present R. L. Mixter, Brian P. Sutherland, our editor, Delbert Eggenberger and H. Harold Hartzler. A number of important items were considered. Among others it was decided to attempt a revision of our constitution, and a committee for that purpose will soon be appointed by the President of our organization. It was decided that we should take a journalist along to the Black Hills this coming summer to write up news notes to publish in certain Christian journals concerning the A.S.A. It was also decided that we should start circulating the first few chapters of Dr. Tinkle's book, "The Creation of The World" to the entire membership, the purpose of this being to ask for suggestions and criticisms.

Mr. J. Lowell Butler of Greshman, Oregon, has set a good example for the other members of the A.S.A., by writing up several pages of detailed comments for Professor Tinkle to use in preparing the new book. We hope that many others are doing the same thing.

Mr. Carl Cadwell of 3927 Dawling Avenue, Pittsburgh 21, Pennsylvania who was for sometime considered a lost member by the office of the Secretary-Treasurer has recently sent in his annual dues and wishes to be considered an active member.

Mr. Delbert Eggenberger of 1121 East 81st Street, Chicago 19, Illinois has been diligent in his labors for the A.S.A. He is at present in charge of all book reviews for our journal as well as acting as our editor. Please send him notices of new books which you feel should be reviewed in the journal.

Miss Cornelia Erdman of Wheaton College who is at present chairman of the committee on the paper for the coming annual convention has been very active recently and a fine program is the result of her labors.

She expects to spend the coming summer at Grand Canyon where she was last summer.

Mr. F. Alton Everest, our former president, recently wrote a fine letter to the President and Secretary of the A.S.A., in which he mentioned his willingness to be more actively used by our organization. We are therefore appointing him editor of the proposed book on "Evolution" to appear in the 100th anniversary of Darwin's "Origin of Species."

Mr. Paul E. Hooley at present a medical student at Indiana University recently sent a fine letter to the office of the Secretary-Treasurer. He has a colleague at Indiana University School of Medicine, a student from Greece who is a member of the Christian Union of Professional Men of Greece. This organization has aims somewhat similar to those of the A.S.A. No doubt a number of you have received a copy of their published volume sent to the membership entitled, "Toward a Christian World View." You will do them a favor by sending your criticisms at your earliest convenience. Excerpts from this letter follow:

"There is much good news about different individuals and organizations working in Greece, but for the present we will limit ourselves to one of them. So we will sketch briefly the work of the Christian Union of Professional Men of Greece.

This is a group of University professors, engineers, doctors, artists, men of letters, and of scientific research who are united by a common faith: that a true reconstruction needs a good spiritual foundation and can be found only in the Christian way of life. These ideas were expressed in the form of a declaration which was addressed to all Greek people and was published during the Christmas of 1946. Here is an extract from this book: "... today's science and modern art have come to a point of respecting the Christian faith and its unsurpassed creative values . . . " The future of humanity and especially of our own homeland depends mainly on the correct and unshakable spiritual foundation of the life of modern man, upon such a foundation only can a true civilization be built. Such foundation is impossible unless the man of today uses the treasure of values that Christianity, the Christian faith and Christian ethics offer to him."

This declaration which circulated widely in Greece was soon translated into foreign languages and was sent to leading professional men in different parts of the world. The answers and comments received reflect that many other science men all over the world have arrived to similar conclusions in relation to the great need of our times for a balanced technical and spiritual development.

Dr. William Lowell Bryan, President Emeritus of Indiana University, when he read an English copy of the "Declaration" wrote: "The union of more than a thousand Professional Men of Greece in a Declaration of Christian Principles is an event of major historic significance."

Working through the periodical "AKTINES" (Beams of Light) during the last thirteen years this group of people has tried to enlighten the people of Greece on great vital issues confronting them. Here are some examples:

(1) Ideological and socioeconomic systems such as communism, capitalism and socialism are analyzed under the light of Christianity by experienced scholars.

(2) Social problems such as divorce, refugee settlement, youth guidance, the sex problem are presented with all the harshness of the documental evidences and are frankly faced.

(3) Social evils and weaknesses such as hypocrisy, irresponsibility and negativity are presented in all their ugliness in the form of short stories, very entertaining and realistic. At the same time worthwhile efforts are encouraged and praised, an example would be the schools for working girls.

(4) The works of leading scientists and artists, such as: Sir James Jeans, Dr. Paul Plattner, Dr. A. Stocker, Bach, Glen Leet, advisor of U. N. missions to Greece, and others are presented and discussed.

Through delegates, this same organization has represented Greece in a number of European, and world conferences of Christian groups. The recent Third World Conference of Christian Doctors in Geneva and the Fourth one in Rome which took place in September 1949 are examples. During this last conference where more than 450 doctors participated, the personality of the patient was emphasized as being of great importance in modern medicine. A characteristic of these conferences is that they start and end with prayer, which reflects the realization of the limitations of human wisdom and the need for strength and guidance from above.

Another way of action of the Christian Union is the sponsoring of lectures by leading scholars presented to the students of the Greek Universities. The objective is to develop among the students a harmonious relationship between religion and science, so that strong, dependable personalities may grow out of these students, personalities that you can entrust with the job of a real reconstruction. However, the most remarkable and notable act accomplished lately by the Christian Union of Professional Men in Greece has been the publication of a book written by Professor A. N. Tsirintanes of the Faculty of Law, University of Athens entitled "Toward a Christian Civilization." This book, written in English, is a concise statement of the thoughts which led to the Declaration to which I referred above. It expresses a careful and deep study into the application of Christian principles on all aspects and problems of modern life, so that this unparalleled chaos, misery, and confusion now prevailing all over the world may come to an end.

The book was at first brought out as a mimeographed manuscript and sent to various eminent personalities in America and Europe, such as Professor Robert Millikan, Ernst Hauser, Henry Russell, Sir David Ross, Sir Edmund Whittaker, and etc., all of whom sent their enthusiastic comments on it. This warm reception encouraged the Union to have the book published in printed form obtainable from the Damascus Publications, 4 Karysti Street, Athens 7, Greece., price \$2.50, cloth \$3.50. The book has had a very favorable welcome from all over the world and the Union is now planning to have it published abroad in a new and revised edition."

Alfred E. Hoover, at present a member of the Armed Forces and located in Korea, recently sent his dues to the office of the Secretary-Treasurer. He asks whether we should not as a Christian organization do missionary work in foreign countries by making several attempts to distribute some of our literature in such countries. Mr. Hoover has set a fine example by distributing more than a dozen copies of Modern

Science and Christian Faith in Japan while he was stationed there.

Professor Hendrich Oorthuys, of the Department of Electrical Engineering, at Purdue University recently visited the office of the Secretary-Treasurer. We had a very fine visit together and he made a number of valuable suggestions for the future work of our organization. More such visits by other members will be appreciated in the future by the Secretary-Treasurer.

Recently we have had a letter from Dr. and Mrs. Norvell Peterson of Trenton, New Jersey. This letter was very inspirational to us in that it was bubbling over with enthusiasm for the work of the A.S.A. The Petersons are planning to be with us at our annual convention in the Black Hills.

Dr. William J. Tinkle of Albany, Indiana, is now giving his full time to the writing of the proposed new book for non-college students, entitled "The Creation of the World." He hopes to complete most of this work during this present year. He will appreciate any comments and criticisms which you may have concerning his work. Please direct them to him personally or to the office of the Secretary-Treasurer.

Dr. Roger Voskuyl, President of Westmont College of Santa Barbara, California and a member of the Executive Council of the A.S.A. recently attended the meetings of the National Association of Evangelicals held in Chicago. There he led a panel discussion on the general topic of text books for Christian schools. He was also able to attend a meeting of the Executive Council of the A.S.A., held in Chicago at the same time.

Corrections in addresses of April 1, 1952 Membership List:

Edgar Wesley Matthews, Jr., 22 Concord Avenue, Cambridge 38, Mass.

Richard E. Strickler, U. S. Naval Observatory Time Station, Perrine, Fla.

James Herbert Zumberge, 114 North Division St., Ann Arbor, Michigan.

New Members

Edna Amstutz is the director of education at the La Junta Mennonite School of Nursing, La Junta, Colorado. She received her B.A. degree from Goshen College in 1943 and has attended the Colorado State College of Education and the University of Colorado. She is president of the Mennonite Nurses' Association.

Glenn C. Arnold received his B.S. in Mechanical Engineering from the University of Michigan and is at present Engineer of Station Efficiency for the Chicago District Electric Generating Corporation. His address is 10831 Avenue F, Chicago 17, Illinois.

Robert Carlton Frost, 613 Marshall Street, Houston, Texas, received his B.A. degree from Reed College in 1948 and his M.A. degree from Rice Institute in 1950. At present he is A. E. C. Predoctoral Fellow in Biology at The Rice Institute.

P. Kenneth Gieser, ophthalmologist, received his B.S. degree from Wheaton College and his M.D. from Northwestern. His address is 626 Howard, Wheaton, Illinois.

(Continued on page 12)

Book Reviews

THE NATURE OF THE UNIVERSE by Fred Hoyle. Harper and Brothers: New York. 1950. 142 pp.

Interest in the history of the universe and our earth has resulted in a great deal of literature on that subject in recent years. Various suggestions as to the processes involved in the formation of astronomical bodies as well as of their constituent elements have appeared on both sides of the Atlantic. This book embodies the contribution of the author to that field.

His thesis is that of a continuous creation throughout all space and time. In a statistical manner a hydrogen atom supposedly appears in a space-time interval. From the "gas" of hydrogen atoms, astronomical bodies form and new elements are made in the high stellar temperatures. Expansion of the universe is unlimited in that the relative velocity away from us, which is observed to be greater as the distance of the body away from us increases, increases without limit.

This appears to the reviewer to lead to some rather difficult conclusions, which the author does not discuss, that bodies an infinite distance away are moving away at an infinite relative velocity.

The first half, more or less, of the book is largely a summation of conventional astronomical knowledge and appears quite accurately and well done.

The latter portion, in which he espouses his own contribution is another matter. Much of that which is stated in the way of positive assertion is far from being well demonstrated or even admitted by most others in the field. An example of the author's attitude is on page 134 where he says he thinks his New Cosmology would have had a shattering effect on Newton.

He states quite positively that the earth was at one time a part of a supernova (p. 84) and the parent of our earth and planets is now a white dwarf. He makes positive statements concerning a binary companion of the sun which broke up and left a gas which condensed into planets (p. 94). Few cosmologists hold the former view now.

On the basis of what biologists "seem to think" about life arising on other bodies he feels we can proceed with "greater assurance."

The "big bang" idea he rejects because it is an irrational process which cannot be explained in scientific terms while his continuous creation can be presented by precise mathematical equations. The "big bang" idea has a great deal of rationality in it; and the fact that mathematical equations fit a process does not verify the hypothesis.

In the last chapter he discusses his views of cosmology and religion, in particular the Christian faith. The difficulties of materialism, such as purpose and the rise of consciousness, are pointed out. He also points out that there is a great deal of cosmology in the Bible.

In his criticism of the Christian faith he apparently failed to acquaint himself with the basic foundations of it. For example, he says it is not reasonable to suppose the Hebrews were given to comprehend mysteries deeper than others can understand. Un-

fortunately, the New Cosmology is unable to tell us anything about the Holy Spirit and His activities in men's affairs. It seems to the author that religion is only a "desperate attempt" to escape from our dreadful situation. Obviously, there is a vast difference between a desperate attempt and finding a real, logical avenue. He also remarks that it seems curious that Christians have so little to say about how they feel eternity should be spent. He apparently fails to realize that the Christian's data is bound up in revelation in the Scriptures and it is quite appropriate that they refrain from unbased speculation.

Summarizing, then, the book needs to be read with caution, to differentiate between better established observations and speculations with little backing, differentiations that the author does not make in many cases. Unfortunately, being a book intended for popular consumption, it will be largely read by those unprepared to make those distinctions. To the reviewer, it seems impossible to find a correspondence between the continuous creation theory and Genesis 1:1. Also, from a perusal of the literature, it appears that few, if any, other cosmologists are following this theory.

D. Eggenberger

OUR QUESTIONING AGE by J. Oscar Backlund. Moody Press: Chicago. 1950. 128 pp.

Books on Christian faith are legion. But to find those that explain Christian fundamentals and living in a clear, direct way and are acceptable both scientifically and theologically is not easy. This small book is one of those finds. It should be useful for putting into the hands of an earnest inquirer as it is not so

large as to discourage the prospective reader and is inexpensive (35c). It is a recent addition to the Moody Colportage Library.

The author's manner is commendable in his maintenance of a fair attitude toward those of other beliefs, and without the invocation of sarcasm that is all too common in Christian writings. Yet he does not compromise on basic Christian doctrines or practice.

His attitude toward science is, "Let us never disparage the efforts of the seekers after truth. But let us remember that to every seeker for the unknown there is a limit beyond which he is unable to proceed." (p. 12).

As to the Word of God, he says that the way to life and of life are complete in the Bible but as individuals each has his own peculiar problems which require communication with God. The chapter on "What Think Ye of Christ" has some good short analyses of the person of Christ.

Regarding sin, he states, "Sin does not primarily consist in an act or series of acts, but rather in a spiritual attitude or direction." (p. 58).

The author's attitude is one of proper balance between the primary purpose of bringing the Gospel to individuals and the secondary but important social and political responsibilities of the Christian. In the reviewer's opinion, it was a serious loss of their own making when Christian theology took an attitude of withdrawing from social and political action because social justice was advocated by liberals.

This book fills a gap between the tract or booklet on the one hand and the larger volumes on the other.

D. Eggenberger



Inspiration Point at Wheaton College Science Station

The "Kind of Genesis and the Species" of Biology*

WILBUR L. BULLOCK Ph.D.

Assistant Professor of Zoology

University of New Hampshire

During the evolution-creation debates that were so popular in the first quarter of the 20th century one of the most important conflicts centered around the problem of "fixity of species." At that time it was generally assumed that "kind" of Genesis 1 and "species" of biology were synonymous. Therefore, since Genesis implied that these kinds or species were stable units, the Christian became an ardent defender of the fixity of species. Indeed, precedence for a stand on the immutability of species had already been set by such biological greats as Agassiz and Cuvier while the main exposition of the concept could be traced back to Linnaeus himself. In the past 50 years, considerable thought and study has gone into the species concept and some important changes have been made that bear heavily on this old problem of species fixity. A challenging problem thus presents itself to the Christian biologist. What is the relationship between "kind" and the newer concepts of species, and is there a Christian concept of species? Mixter (1950) made a contribution to this problem by pointing out that the word "kind" is a rather general term that may have several meanings. He further pointed out the difficulties involved in assuming synonym for "kind" and "species." Without any further consideration of the former term at this time, let us consider the problem of species as it manifests itself in that area of modern biology known as taxonomy or systematics.

One of the oldest approaches to the study of the living world around us has been in the cataloguing or classifying of plants and animals. The resultant type of biology—systematics or taxonomy—has, in recent years, been drastically revised to play a major role in outlining the course of evolution. From this has arisen the current twofold aim of modern taxonomy: (1) to name and describe animal forms and (2) to arrange these forms in an order that will indicate their evolutionary relationships. For the Christian, it now becomes necessary to analyze these objectives of modern taxonomy and to attempt to discern any correlation between the facts of this taxonomy and the Scriptures.

At first sight the naming and describing of animal forms seems to be a relatively simple task. Certainly Adam had no great difficulty in Genesis 2:19,20 where we are told: "And out of the ground the Lord God formed every beast of the field, and every fowl of the air; and brought them unto Adam to see what he would call them: and whatsoever Adam called every living creature, that was the name thereof. And Adam gave names to all cattle, and to fowls of the air, and to every beast of the field." However, our difficulties soon become apparent when we actually try to catalogue the forms we see in the world around us. This dilemma is perhaps best illustrated by the remark of the entomologist: "Where was I to put a beast or a bug when the next one that's exactly like it is entirely different the next time you look at it?" Not only does this exclamation of exasperation indicate

difficulty in assigning an animal form to its taxonomic niche (or species) but it intimates that the niche itself is none too reliable.

The task of defining the "species" is one of formidable proportions. Such is the nature of the task that many have been led to deny the reality of the species. Historically, we can follow through from the fixed species of Linnaeus (1758) to the relative, "passing parade" concept of Haeckel and Darwin, to the modern polytypic species of Mayr, et al. As these attitudes varied in time, so do they vary with the particular animal or plant group involved and with the approach of the taxonomist. In this manner there is little correlation between the species of bacteria, protozoa, helminths, insects, or vertebrates. For example, witness the absurdity of applying a bacterial species concept to helminths as done by Wilhelmi (1940).

"Species" of helminths may be defined tentatively as a group of organisms the lipid free antigen of which, when diluted to 1:4000 or more, yields a positive precipitin test within one hour with a rabbit antiserum produced by injecting 40 mg. of dry-weight, lipid-free antigenic material and withdrawn ten to twelve days after the last of four intravenous injections administered every third day.

Among the earliest concepts of species is that which considers the species to be a group of animals of similar morphology and not overlapping in this respect with any other group. This is basically the concept of Linnaeus (1758). It is a much maligned concept but is still used today by many modern taxonomists. Gates (1946) relies considerably on this concept in his evaluation of primate evolution. Students in many of the invertebrate phyla use it in cataloguing new forms. Indeed, it would be impossible to begin a taxonomic study of an unworked group without a morphological introduction. However, this concept has its shortcomings. The selection of characters that are "significant" tends to become quite subjective. Besides, the significance of these characters varies from one group to another. Rensch (1934) illustrates this by noting that folds in the shell mouth of certain snails are reliable for species identification whereas in other snails individual variation makes them useless. Witness also the widely divergent views on the classification of the Trematoda depending upon whether suckers, excretory pattern, reproductive system, or life cycle is used as its basis.

Another approach to a species concept, and one that has achieved considerable popular acclaim, is on the basis of interbreeding. One of the better known manifestations of this concept is illustrated by the statement that "all forms belong to one species which can produce fertile hybrids." This is a very appealing definition but it has many limitations. (1) It cannot apply to the Protozoa or to hermaphroditic groups. (2) There are too many obvious exceptions. For example, several well known species of *Drosophila* are capable of producing at least some fertile hybrids. Moore (1946 a,b) showed that crosses between geogra-

*Paper presented at the Sixth Annual Convention of the American Scientific Affiliation, New York, August, 1951.

phically widely separated races of the frog, *Rana pipiens* produced defective "hybrids" whereas crosses between two species *R. pipiens* and *R. palustris*, from the same area produced normal hybrids capable of reproduction. Still another example of the unreliability of this definition is illustrated by the shad genus, *Pomolobus*. These marine fishes go up the bays and rivers to spawn in brackish water during the spring of the year. At least, in the region of Durham, New Hampshire, *P. aestivalis* and *P. pseudoharengus* overlap in their spawning seasons. Much interbreeding is now taking place so that it is quite difficult to distinguish the two species. Thus the presence or absence of fertile hybrids is not a reliable species character.

A somewhat improved version of the interbreeding species concept is that of Mayr (1942). "Species are groups of actually or potentially interbreeding natural populations, which are reproductively isolated from other such groups." This definition avoids a consideration of hybrid sterility but still retains the limitations shown by the sterility concept. It can not apply to many invertebrate groups nor does it explain the hybrids between sympatric species.

Still other species concepts have utilized genetics, physiology, or immunology as their basis. However, general application of these criteria have yielded little but confusion in the taxonomy of the greater part of the animal kingdom. It is not surprising then to find many adherents to what Mayr (1942) characterizes as the "practical species concept"; namely, that a species is a systematic unit which is considered a species by an authority on the group. This concept reduces the species to the depths of subjectivity. It creates an ephemeral, highly limited species that serves only a given group of authorities in a given group of animals or plants.

Thus it can be seen that at the present time there is no real concept of species. Indeed it is easy to become pessimistic about the very existence of the species as a valid biological unit. However, most authorities in the field of taxonomy and evolution still maintain that the species is a real and useful entity (Mayr, 1942; Goldschmidt, 1940; Huxley, 1940). This is particularly true for animal groups which are well "worked" taxonomically. In these groups the various factors in variation (geography, temperature, altitude, etc.) are most clearly understood, and it is in these groups (e.g. birds) that the "polytypic" species dominates the scene.

The polytypic species is a concept that had its beginnings with Kleinschmidt (1900) in his Formenkreis theory. This Formenkreis was a sort of super species which took into account the factors involved in the variations of populations under differing environmental conditions. Kleinschmidt further recognized the strong possibility of supernatural intervention in bridging the gaps between related Formenkreise. Such a concept—minus the supernatural intervention—is the basis of Goldschmidt's modern mutationist theory. Unfortunately, what Kleinschmidt lacked in genetics, Goldschmidt lacks in making any contribution to the species problem. In general, the polytypic species has led to the lumping of many varieties, previously described as distinct species, into only a few species. Such a concept applied to man would lead to the inclusion of all living and fossil man into one or at most two species. This seems to be in greater harmony with the Scriptural observation that "God hath made

of one blood all nations of men." The reverse procedure as applied to man (Gates, 1946) leads to a great diversity of terms and serves only to support favored phylogenetic fancies. Some species, as pointed out by Huxley (1940), appear to vary little and hence are considered monotypic.

One more problem should be considered. That is the "subspecies." To Goldschmidt (as well as Kleinschmidt) the subspecies merely indicates the multiplicity of variations **within** the species. To the majority of present day evolutionists (e.g. Mayr, Dobzhansky), however, the subspecies represents an incipient new species. Should this latter concept prove correct then Christians must certainly look for the units of creation (kinds?) elsewhere than at the species level. Should mutationism triumph then the polytypic species concept might solve the problem. Much long and laborious taxonomy must be performed before anything definite can be said about the limitations of the species unit.

In summary, the species concept in modern biology is far from settled. The prevailing opinion is that there is a real entity in the species but whether this can be defined to satisfy all plant and animal groups is problematical. Consequently, the species, at present, is basically human concept. It is an interesting biological problem but probably does not bear any real relationship to the "kinds" of Genesis. It is possible that further developments in this field will shed light on this complex problem. Meanwhile, it is ill advised to champion the cause of fixity of species under the banner of Christianity.

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Addendum

Since the manuscript was prepared there has come to the attention of the author several papers bearing upon the relationship of taxonomy to evolution which indicate a growing feeling of caution and dissatisfaction on the part of taxonomists and students of evolution. Gilmour (1951: *Nature* 168:400) stresses the point that natural classification is **not** essentially and primarily phylogenetic. This points up the general feeling expressed earlier in the year in the same publication in the report of the 1950 meeting of the Systematics Association of Great Britain. Here the difficulties of "phylogenetic classification" were discussed and the **speculative** nature of the process emphasized.

Discussion

Dr. I. Cowperthwaite, the session chairman, then asked for discussion from the floor.

Mr. Meyers: I would like to make a comment on the paper, to this extent, that I believe we, as Christians, should be rather careful of just what he warned us against, this business of getting out on a limb. A lot of times we say things which we, at the moment, say are theology and doctrine and then later on, in the light of new discoveries, we have to back down and that always makes Christianity look bad, especially in the face of the world. Not too many years ago in my own lifetime the pastor said that it was a sin to bob the hair. Well, pretty soon everybody was doing it and then it wasn't a sin anymore. That's

certainly an illustration of the thing that goes on. It's the same way with this fixity of species. We get ourselves out on a limb and we say there are only so many kinds. Well, I wonder how long Adam would have to live to count all of the various kinds if one used all the various different animals that there actually are. If he were to count every one that we now know, I'm sure he'd have to live much more than his 900 and some years.

Dr. H. Hartzler: This is not my field. I'm not here to talk to the point. This just gives me an opportunity to say something concerning the purpose of the ASA. I think this paper is a good illustration of the fact that in science we are continually striving for the truth. We do not add up the truth. Many so called scientists claim they have all these words. But when it comes to the ASA, we are very much concerned that the Lord Jesus Christ may be known through our work and how are we to contact our homes and science if we cannot talk to them in their language. That's the purpose of this organization . . . that we may go to a man in any field and show him that the Bible that we believe is not wrong. Now that's a big task.

Bullock: I'd like to add just one word along the same

line. When it comes to the question which we are going to discuss, on presenting Christ to the students in our Christian and secular colleges—and I happen to represent a secular institution—we find that you've got to meet these people on common ground. Now, I could get up here and, I suppose, talk way over your heads on this subject of the fixity of species. But I've discussed that problem of fixity of species with some of the members of my own department, some of my graduate students and I guarantee, when you discuss it with these people, that it's not too long before you realize and recognize that this is just one part of a much greater issue. You can't get into a discussion of that nature for very long before you're getting right down to the bed rock of the infallibility of Scriptures, the sinfulness of man, and redemption through Jesus Christ. You can't avoid it.

I think we do tend perhaps to sort of skim over these very basic things because we've agreed on them to begin with, but you take the same approach and the same argument with an unbeliever and you'll eventually wind up discussing the infallibility of Scriptures and the deity of the Lord Jesus Christ.

Bruner's Doctrine of the Origin and Unity of the Race*

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The traditional Christian doctrine of human origins is that the race of mankind descended from a single human pair, named Adam and Eve, who were created by a special act of God, about 4000 B.C. somewhere in the land of Mesopotamia. The evidence which science has marshaled against this tradition cannot be dislodged by a dogmatic reaffirmation of its truth. It is common knowledge that we need not simply a reaffirmation, but a reconstruction of the tradition, one which on the one hand will deliver us from the extremities of religious liberalism, without, on the other, involving us in scientific obscurantism. Whatever else we may have in common with the Neo-orthodox thinker, we share with him this need, and therefore do well to think upon his proposed solution.

Chief spokesman for Neo-supernaturalism on this score is Emil Brunner and it is with his doctrine of racial origins that we shall concern ourselves in this paper. Whatever dubious mental baggage Brunner may have brought with him on the journey back from Schleiermacher to Paul and the Reformers, of one thing he is solidly convinced, and that is that there can be no reproachment between Christianity and any form of evolution (whether it be that of materialism or idealism) which slurs over the basic distinction between man and the animals. The highest animal shows no capacity for ideas, for transcending the given experience through the unconditional, the normative, the perfect. He never investigates truth for truth's sake, creates beauty for beauty's sake, or demands justice for justice's sake.¹ Here is a dimensional divide. Concepts are different from associations of sensations.

The conditioning influence of millenia could never metamorphosize biological impulses, urges, and drives into logical and ethical norms. The higher and lower of the humanistic evolutionist is simply a *façon de parler*. All that is left on such a basis is biological differentiation.² Over against such an evolutionism, Protestant Fundamentalism, with all its bizarreness is absolutely right, with its insistence upon the Biblical teaching of man's creation in the divine image by a special act of God.³

The trouble with Orthodoxy is that it has regarded the historical form of the creation narrative as essential to the doctrine as such. Such "Don Quijotish" conservatism has led to the apologetical impasse which has so discredited the church in the eyes of science.

Attempts to identify the Adam of Paradise with the progenitor of the Neanderthal man or any other specimen of the paleontologists yields an impossible bastard figure which can only alienate the scientifically informed.⁴ The shattered Adamic tradition which dominated European thought for 1500 years has lost its power over the modern mind.⁵ Complicated and complex as the family tree of *homo sapiens* may be, the emergence of man on the physical side from the ranks of the animal kingdom in a remote antiquity has long since passed beyond the stage of plausible hypothesis to full-fledged scientific knowledge with which every integrious theology must reckon just as much as with the doctrines of Copernicus, Kepler and Newton.⁶ To be sure, the missing link is still missing and it is, according to Brunner, in the highest degree improbable that the complicated organic substance which constitutes the physical base of life can ever be reduced to a fortuitous combination of inorganic molecules.⁷ There

*Paper presented at the Sixth Annual Convention of the American Scientific Affiliation, New York, August, 1951.

are breaks in evolutionary development which point to the mystery lying behind the process. But the recognition of such does not alter the fact that he who thinks in terms of vast epochs of time in which there was a gradual progressing from the simple to the complex, has an evolutionary mentality which is quite foreign to the mind of antiquity that produced the Genesis narrative.

He who recognizes that there was once a universe, in which no planet earth existed, an earth, on which there once existed types of plants and animals of another sort than those of today, a time in which there were mammals, but as yet no man, recognizes thereby the "doctrine of evolution."⁸

Not only is the antiquity of man inconsonant with a literalistic view of the Old Testament tradition, but so also is his heterogeneity. The race concept must be employed with care in view of the complexity of racial instincts which do not always parallel blood relationship (as in the case of the Jews and Arabs), and the obscurity which shrouds the origin of present racial types.⁹ Brunner is not dogmatic, but in his most recent utterances he inclines toward polygenism in the light of present day paleontology.¹⁰ By this time it is apparent that Brunner's reconstruction of the tradition will take more radical lines than that of the "old apologetic" which interprets the "days" of creation as scientific ages and stretches the genealogies of Genesis across the six digits of geological time.

The cue to the maze according to Brunner is the recognition of the fundamental difference between the pronouncements of faith and the knowledge of science. Faith believes, on the authority of God's word, that man is created in the divine image. That is to say, the fact of man's creation is not the conclusion of a rational process, nor something one discovers in a laboratory. It is rather a matter of revelation. One must keep the distinction between faith and scientific knowledge ever in mind. To be sure, the natural basis of human life, which is the lawful subject of scientific investigation, is a part of the creation of man in the larger sense.¹¹ God created man out of the dust of the ground. Faith, however, should not attempt to pronounce upon the when and how of this process. To one who has grasped the essential difference between faith and scientific knowledge the attempt to identify the creation of man, in the proper sense of the word, with a chronological point in the empirical process, is like trying to see God in a telescope or find the spirit of man in the brain. Of course, the mind, or spirit, is somehow connected with and has its physical basis in the brain, but phrenological knowledge is not the concern of faith.

In deed and truth, the Holy Spirit does not guarantee for us any world facts, whether historical or cosmological. The *testi monium spiritus sancti* is strictly limited to its own sphere. The Spirit testifies to us the Father and the Son, but not this and that.¹²

The question of man's origins in the theological sense is as distinct from the matter of empirical beginnings as is the chemistry of colors from the beauty of art, though we cannot have one without the other.¹³

So it is also with the question of racial unity. So far as it is a matter of empirical factuality, we must await the results of scientific investigation. On the other hand, the theological unity of the race, if we might so speak, which is an absolutely fundamental dogma of our Christian faith, is that all men are *per definitionem* created in and to the divine image. A man who did

not bear this image would not be a man, no matter what his empirical origins.¹⁴ By the same token, he who is in the image of God, is a man, whether he be Caucasian, Mongolian or Negro. When we realize that the creation of man transcends temporal categories, our faith in that cardinal doctrine will not be shaken by the loss of the historical form in which it was traditionally cast. Said Brunner in a lecture to an American audience:

As regards science, the fact that the Bible message is embedded in the world-view of antiquity, not in ours, is of no more significance for the meaning of that message to us, than is the difference between Shakespeare bound in paper and in leather, for my enjoyment of the poet. Whenever, therefore, there emerges a conflict between faith and reason, it is only an apparent conflict which stems from a failure either on the part of theologians or scientists to observe the proper boundaries between the two.¹⁵

In recognizing that the scientific pronouncements of Scripture are not binding upon us as such, we do not thereby reject the teachings of the writers of Scriptures, much less condemn them. The antique scientific form in which the Genesis narrative of creation is cast is the alphabet of revelation.

The Mosaic account reports, therefore, concerning creation, with the use of modes of representation, which, without ceasing to be vessels of divine revelation, are at the same time of such a sort, that they stand in opposition to an up to date scientific view of the world, so far as their cosmological content is concerned.¹⁶

It is impossible, according to Brunner, to give expression to religious truth without this involvement in the world view of one's age, since the concepts which the children of light have at their disposal are necessarily time conditioned. No doubt Paul when he spoke of heaven and the heavenly places, of being caught up into the third heaven, thought in terms of the three story world structure of Babylonian cosmology, as did everyone in his day. But does the abandonment of antique cosmology mean that I can no longer believe in heaven? On the contrary, affirms Brunner:

Just as it is vital to me that a heaven exists—the heaven of which Paul speaks, in spite of the fact that he always, whenever he speaks of it, also speaks of that one, which does not exist, i.e., the Babylonian glass-bell, so also it is vital to me from the standpoint of faith and dogma, that creation and the fall really happened, in spite of the fact that I know that they did not *so* happen (as to time, place) as Genesis 3, Paul, and the Reformers supposed.¹⁷

But the recognition that the form of the creation narrative is no longer possible for us, carries with it the task for theology of forging a new alphabet for the doctrine which will make it meaningful in our modern world. In the accomplishment of this difficult task Brunner proposes a new theological method, which is involved in his personalistic philosophic assumptions. In brief his thought is this. God is personal and the revelation of Himself to man, therefore, is a matter of truth in the form of personal encounter, in contrast to the truth of science which is non-personal, objective truth. This personal self-disclosure of God takes place supremely in Christ, a person, yea, the person of God, whom we encounter in the crisis of faith. The Christian's belief in creation arises at the

point where all faith does, where God meets him in Christ as the Lord, who because He is the Lord, is the creator. The knowledge of creation, then, is the knowledge of address, or, as Kierkegaard would say, it is existential knowledge, it is not the knowledge of reflection. "To encounter God as Lord, is to know oneself as creature."¹⁸ To grasp this fact is to realize that so far as Christian faith is concerned, "where it is a question of origins, it is not a matter of some Adam or other, who lived so many thousand years ago, but of myself."¹⁹ I am Adam. You are Adam. To know and confess with the Psalmist that God formed our inward parts, covering us in our mother's womb, that we are fearfully and wonderfully made, that is to have a Christian doctrine of human origins. Of course, this revelation of God in Christ is mediated to me through the apostolic witness as inscripturated in the New Testament. We save ourselves a great deal of trouble, therefore, if we bear in mind that the Old Testament revelation is not "the definitive form of the self revelation of the Creator."²⁰ The Old Testament witness, indispensable as it is, is only preliminary. The revelational data on which our doctrine of creation, therefore, must be primarily oriented is not Genesis 1, but John 1. "In the beginning was the Word and the Word was with God and the Word was God. All things were made by Him and without Him was not anything made that was made." Here there is no interest in a cosmogony.

In evaluating Brunner's attempt to reconstruct the tradition respecting the origin and unity of the race, we must recognize the penetration and originality of his position in many respects. Though our treatment has been far too brief to do him full justice, yet we have sketched the outline with sufficient comprehensiveness to ask a very pertinent question: That question is this. Has Brunner succeeded in retaining the content of the Christian doctrine of origins, without the Biblical form?

There are several considerations which compel a negative reply. For one thing, his insistence that a doctrine of human origins, oriented primarily in terms of the revelation of God in Christ, rather than in terms of the Genesis narrative, removes all ground for the sort of historicizing of the doctrine of creation which we have in the Augustinian tradition, is not well taken.²¹ It is true that Jesus nowhere refers to Adam by name, but He does refer to the days of Noah (Matt. 24:37-8; Luke 17:26-7), to the fate of Lot's wife (Luke 17:32) and other events of the Old Testament narrative, which are for Brunner as impossible scientifically as Adam in Paradise. In giving up the historicity of the tradition, Brunner is not merely abandoning certain defects in Augustinianism, or the antique alphabet of Old Testament revelation, but the authority of Jesus Himself, and history has shown that to question Jesus' infallibility is the first step toward questioning the significance of Jesus and the germaneness of His message for our age altogether.

Furthermore, if the historical form of the creation doctrine be abandoned, the same is true *mutatis mutandis* of the doctrine of the fall. But when the attempt is made to formulate the Christian doctrine of the fall without a historical form, the profound difficulties in Brunner's theological method are brought into sharp focus. Then man comes on the scene of history not only a creature, but a fallen one. Does not this divest the *status integritatis*, which is the logical prius of the fall, of all meaning? And how on such a view can I

be held responsible for my sinfulness any more than my creaturehood? Furthermore, to existentialize the Adamic tradition, i.e., to say, I am Adam, you are Adam, rather than some *homo primigenius* who lived thousands of years ago, does violence to the Biblical parallelism between Adam and Christ. Brunner insists in many places that the historicity of Jesus in the most brutal sense of the word, is absolutely indispensable to the preservation of Biblical Christianity.²² He posits in this regard an absolute disjunction. Either we must settle for a Christianity of fact or a Christianity of timeless ideas, which is no Christianity. There is no *tertium quid*. The question is, how does one escape this either-or in the case of the first Adam? The impossibility of such an approach in the name of Biblical Christianity becomes more than obvious when one analyzes Paul's argument in Romans 5. Here Paul not only assumes the historicity of the first Adam, but his whole argument hangs upon it, since his purpose is to illustrate how we are justified on the basis of another man's righteousness (Jesus Christ) by appealing to the fact that we stand condemned by the transgression of our forefather Adam. "For as by the one man's disobedience, the many were made sinners," says Paul, "so by the obedience of the one shall the many be made righteous."²³ To abandon the existence of the first Adam does not alter the *form* of Paul's argument, for the simple reason that there is no argument left to have a form.

Under the duress of these problems, Brunner concedes in the recently released second volume of his

Dogmatics:

The view of a primeval historical state, in which man lived completely according to God's Creator will, until, through temptation from without, an evil will, a false striving after independence, arose in him and he "fell," whereby the paradisaical state came to an end—this mythological, historicizing mode of representation, is indeed the almost unavoidable form in which, again and again, we clothe the antithesis between creation and sin, in spite of ourselves. . . .²⁴

It would seem that Brunner has now come to the place in his thinking where he virtually admits we cannot preserve a Christian doctrine of origins apart from the historical form of the Biblical narrative. His own unwillingness, however, to accept this form, would seem to leave the problem where he took it up. He has not been successful in rising above the Orthodox-Liberal antithesis.

1. Cf. *Der Mensch im Widerspruch*, Berlin: 1937, 434-5.
2. Cf. *Christianity and Civilization*, New York: Charles Scribner's Sons, 1948, Vol. I, 82, 85.
3. Cf. *Dogmatik*, Zurich: Zwingli-Verlag, 1951, Vol. II, 59.
4. Brunner's actual words are, "ein unmöglicher Bastard heterogener Anschauungen." *Ibid.* 58.
5. *Der Mensch im Widerspruch*, 112.
6. *Dogmatik*, II, 94. Cf. *Offenbarung und Vernunft*, Zurich: Zwingli-Verlag, 1941, 276.
7. *Dogmatik*, vol. II, 45.
8. *Ibid.*, 49.
9. *Der Mensch im Widerspruch*, 340.
10. *Dogmatik*, vol. II, 230.
11. *Das Gebot und die Ordnungen*. Tübingen: Mohr, 1932, 601.
12. *Offenbarung und Vernunft*, 171.
13. *Der Mensch im Widerspruch*, 79.
14. Idiots, who give no evidence of *Geist*, are, for Brunner, borderline cases. What place such pitiful creatures have in God's household, we cannot know. He suggests that even the idiot is a potential person, not wholly without a spark of

human existence. *Ibid.*, 351.

15. *The Word and the World*, New York: Charles Scribner's Sons, 1931, 5.

16. *Dogmatik*, vol. 2, 35.

17. "Duplik," *Kirchenblatt für die reformierte Schweiz*, Sept. 9, 1926, 141.

18. *Dogmatik*, vol. 2, 12.

19. *Der Mensch im Widerspruch*, 78.

20. *Dogmatik*, vol. 2, 8.

21. Cf. *Dogmatik*, vol. 2, 88-9.

22. Cf. *Offenbarung und Vernunft*, 278.

23. Romans 5:19.

24. *Dogmatik*, vol. 2, 88-9. Cf. to the same effect, *Das Gebot und die Ordnungen*, 586.

Discussion

Dr. H. D. Holland: Mr. Jewett, you analyzed the crisis theology as I understand it and gave the objections to it. I wonder if you would summarize your own synthesis?

Dr. P. K. Jewett: Perhaps I could mention a thought of Brunner's which I have found very stimulating with regard to the problem of science and faith. For Brunner faith moves in the dimension of personal encounter, encounter, that is between God who is a person and man, who is a person. When God meets me in the person of Christ and I say yes to him, that is faith. Now Brunner suggests in several places, that all knowledge be oriented in terms of its proximity to this personal center of faith. He sometimes employs the geometric figure of concentric circles around a given point. The outermost circle would represent the purely formal sciences, such as logic and mathematics. Within this outer circle would fall the sciences of

physics, chemistry, biology, history, sociology, psychology, etc., and in that order. The inmost circle would represent theology, which is the science concerned with God and his relationship to man.

This structure is, of course, an ontological one. What is of interest in our discussion, is the epistemological inference which Brunner draws at this juncture. He argues that the harmony of faith and scientific knowledge is a matter of recognizing that the role which faith plays in our scientific conclusions is inversely proportional to the distance of the knowledge area concerned from the personal center. That is to say, our Christian faith does not affect our conclusions in logic and mathematics (unless we are talking about the metaphysics of logic or something of that sort). In history, and psychology, however, a man's religious faith does make a considerable difference in the conclusions which he makes as a historian or psychologist. And, of course, in theology there is virtually no agreement between Christians and non-Christians.

Of course, to work out this general principle in concrete cases, Brunner would admit is an ever unfinished task. Our scientific knowledge is constantly increasing and our understanding of faith deepening. Consequently, it is impossible to speak with finality on every issue in debate.

Brunner's existential emphasis, over against the formality of the state church system has its healthy side. We must experience redemption. We must meet Jesus Christ as a person, and have personal fellowship with Him.

Some Implications of Modern Education For Christian Teachers*

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There is probably no subject appropriate for discussion by this group which is calculated to evoke more general response or stir up more emotional reaction than that chosen for this paper. Such a situation makes this presentation a difficult one but it has been attempted because of the vital importance of this topic and because of the interest evidenced in it on the part of large groups of Christians. Because we are all more or less familiar with schools we are inclined to feel qualified to pass judgment on modern education and educators. We need to remind ourselves, however, that as Christians we are especially obligated to become informed before we speak out on any subject. Too often we are content to oppose the efforts of those who exclude our Lord without or with inadequate scholarly rebuttal. We submit that our testimony will be more effective when we are able to propose alternative action superior to that with which we find fault. The purpose of this discussion is to point out some of the significant characteristics of modern education and to suggest the challenges it presents to thinking Christians.

At the risk of too great brevity we propose to define modern education as the "science dealing with

the principles and practice of teaching and learning" as it makes maximal use of the latest discoveries and technical know-how in psychology and other related fields. It is obvious that such a statement does not exclude the philosophy of education but neither does it restrict our discussion to that area. That Christians can find little in modern philosophies of education with which to agree is axiomatic, for educators as a group are no less unregenerate than are physicists, anthropologists, or lawyers. We must be careful, however, not to criticize modern education simply because we cannot agree with the thinking of some leaders in the field. Our problem is to study the factual information available and to develop a philosophy in harmony with our Christian position. We further suggest that rather than to spend our time and effort campaigning against humanism or secularism in our schools, it is for us to appraise the reason for this predicament and to set about rectifying it. Without minimizing the influence of leaders of agnostic or even atheistic persuasion, we should observe two factors which have contributed to this trend in modern education. There is little we can do to repair the damage already done except to insure the impossibility of its recurrence by taking steps to correct these deficiencies.

*Paper presented at the Sixth Annual Convention of the American Scientific Affiliation, New York, August, 1951.

The first factor is the lack of competent leadership in the field. This does not imply that there are no Christian leaders of significant standing in education but rather that there are too few for effective action. It is regrettable that so few Christian young people undertake professional study in this area and that the majority of those who do, confine their efforts to independent school work.

The other matter to which we should turn our attention and which is of immediate concern to all of us is the failure of the Christian citizen to fulfill his responsibilities in helping to determine local educational policy. This is probably an extension of the lack of interest in civic affairs which is too typical of Christians generally. The unfortunate result of this failure has been a wave of criticism of the public schools and a swing to the establishment of independent schools.

Our discussion of the character of modern education will be limited to some areas which offer more immediate challenges for our consideration. The first of these is methodology. It is here that we see the most striking departures from the kind of education with which we may be more familiar. Studies in educational psychology have made valuable contributions to the improvement of methodology. Foremost among these has been the challenge to formal discipline. Transfer of training is no longer taken for granted and special effort is made to insure that learning is taking place. Memory work and rote drills are replaced with lifelike experiences which enable students to make useful adaptations of facts and generalizations learned. There is ample evidence to show that these new methods are improvements in our efforts to help students learn. A second emphasis which has come out of these studies is that concerned with individual differences. There is fundamental error in the idea that a given learning situation will provide meaning for all students. Insofar as is possible, the modern teacher modifies the experience for each learner in an effort to provide for each that which will enable him to realize maximum success. That this is a difficult task is obvious and its effective accomplishment is one of the major problems in our schools. A third phase of modern methodology is the development of the activity learning situation. Researches have indicated that learning takes place as the learner reacts to his experience. As the degree of reaction is limited the learning is curtailed. By providing opportunities for overt behavioral responses in the classroom the modern educator makes possible a higher rate of learning by students.

This brief mention of three areas in which modern methods have made some radical departures from the traditional, serves to indicate the kind of progress which has been made. The challenge these developments present to Christians should be apparent. Not only should we examine our classroom or other teaching methods but we may well apply these principles in appraising our efforts to present Christ to those who know Him not.

The most significant challenge modern education has thrust upon the Christian Church concerns the participation of lay citizens in the determination of school policy and the actual operation of schools. Studies have shown that public understanding of the nature of education and of what it can do is one of the most significant factors in developing good schools.

Aware of this, the modern administrator seeks to involve the local citizenry in the school program. He will encourage the establishment of groups for study of the school philosophy. He will take steps to insure wide participation in the formation of the budget. He will welcome large attendance at Board of Education and other meetings. He will encourage the utilization of local resource persons in classroom work. Public participation in the school program is to be expected in a democracy since education is a function of government delegated by the state to the local community where the citizenry accepts the responsibility for carrying on a school program. To state that this development in modern education presents a rare opportunity to Christians is to underestimate its significance. For many localities this will be the chance to repair defects and fill in omissions in local educational policy. We Christians must do all in our power to make our position known to the community and to demonstrate our ability to make valuable contributions to community projects.

A third area which offers a significant challenge to Christians is in the supply of personnel to man the schools. It is no secret that modern education is hampered by a serious lack of teachers to carry on even an inadequate educational program. This problem is in the press almost daily. There is a real crisis at hand in the elementary field where even the recruitment of ill-trained personnel has been insufficient to fill the positions and there is every reason to expect this situation to worsen in the immediate future. Here is another rare opportunity for Christendom to make its voice heard. There are unlimited openings for Christian young people to serve their Lord in the classrooms of our nation.

Another matter which requires but brief mention is that of the need for more adequate textbooks. This need is widely apparent as educational research has forged far ahead of the supply of materials suitable for use in the newer methodology. The matter of Christian textbooks was well covered at the last annual meeting where Mr. Buswell ably presented the dilemma facing those who would produce texts with an underlying Christian philosophy. The desirability of publishing these in the near future must be weighed against the added value of their preparation by those who have devoted themselves to attaining competency for this task. The advantages of each course of action are evident and it would seem wise to proceed with both. We must caution, however, that texts which are developed without due regard for recent advances as indicated above will be unlikely to receive wide use. In the face of insistent demands for textual materials which are functional in nature and thus suited to the modern curriculum, Christian scholars would do well to embark on a program designed to supply just such material in the Christian philosophy. Campaigning to remove certain textbooks is valueless unless provision is made to replace these with others of at least equal standing.

A final area which has significance for us is that of philosophy in education. That the last word on this subject has not yet been spoken is evident to anyone familiar with the literature. The ascendancy of philosophical systems which rule out absolutes has caused no little stir among educators. That there is an underlying realization of the need for attention to spiritual matters is indicated by the nature of the

most recent publication of the Educational Policies Commission, probably the most influential group of leaders in the profession. This book, **Moral and Spiritual Values in our Schools**, is now enjoying wide circulation. While we may not concur in the opinions expressed we cannot but admit that this indicates desirable awareness on the part of educators. Here again we must face a fundamental lack in our failure to provide Christian educational leaders for service on this and other similar commissions. But to stop here would be unfair to the efforts which have been made in this regard. Of great significance and value in this attempt to assert the Christian position is the recent publication of **Christian Education in a Democracy** by the N. A. E. Committee. This pioneering effort needs reinforcement and re-emphasizing by a whole range of works in the field of education developed in the Christian philosophy. The uncertainty of modern educational philosophy offers a challenge to Christian certainty.

By way of conclusion to this brief treatment several suggestions are offered for consideration by this group both collectively and individually. That Christians should embark on a positive program designed to remedy the defects apparent in modern education and that such a plan must embody the latest know-how educational research has developed is a basic postulate. The recommendations which follow assume this primary principle.

1. Christians should dedicate themselves to a thorough study of education because a) it is such a vital factor in our personal development and b) we must be well informed if we are to offer worthwhile criticism of matters educational.

2. Christians should make a determined effort to participate actively in community affairs, particularly the formulation of local educational policy.

3. Christians should launch a recruitment drive to encourage young people to enter educational work as an area of Christian service.

4. Christians who are qualified should begin work on textbooks and other teaching materials built around the Christian philosophy.

5. Christians, and particularly Christian educators, should continue to work on the development of an adequate Christian philosophy of education.

Education, which is so vitally concerned with the young and with the development of ideals and attitudes, offers a unique challenge to Christian thinkers. Are we ready to meet it?

Discussion

Miss M. Chan: What factors do you think should be considered by a Christian group intending to establish a parochial school?

Mr. E. L. Hammer: This particular problem is probably the hottest issue outside the Federal Aid. In the first place, let me preface my remarks by saying that to criticize education in Christian parochial schools as such would be utter foolishness on my part. My education until I came to Teachers College or until I went to Northwestern, from the seventh grade up, was in just such schools and I certainly am impressed with it. However, I think that there are some very important considerations that any such school must take into consideration and weigh rather heavily. One of these is in the matter of finance.

There have been enough studies now, I think, to

enable us to say rather emphatically that it's very unlikely that we should be able to supply a good educational program for young people for less than \$200 per student per year. I'm thinking now of the elementary and high school level. And further, I should point out that this is based on the assumption that the average elementary school would have at least 300 pupils and the high school at least 700. Frankly, it's a question in my mind, first, whether we have that much money and, secondly, whether it would be wise to spend it in this way. That leads me to the second point; namely, I would recommend—I would urge—that the group considering starting such a school exhaust all possibilities for improving their local school. I think I can give you a case in point. There is not very much that people living in this area can do about the school system in New York City. It is something that is so big and so unwieldy. I am sure that some more studies have been carried on in connection with the Bronx Park project, but, for the time being, nothing effective can be done to improve the situation in the local schools. Then I would consider deciding that they enforce the establishment of a Christian school to replace them. Those two factors, I would say, are the important ones: first, to have enough money and, if we have it, is it going to be best spent in the establishment of such a school; and secondly, are we justified in resorting to this rather than augmenting the public school program as it is operating.

Miss M. Chan: There seems to be an indication that modern educational methods are working out better. Do you think that is true?

Mr. E. L. Hammer: I think that probably the best single reference, and there are many, is the 8-year study carried on by the Progressive Education Association. Of course, it has since gotten a very poor name and deservedly so, I think, but the 8-year study was a study of a group of schools that were quite advanced in these newer methods. Against each one of those was established another school of the traditional type that would offer a control. I think the best single indication of the success of the program is that practically without exception and certainly generally their graduates did much better in college work, not only in basic academic work but particularly in work of a social nature, school activities, establishing clubs, exerting leadership and that sort of thing. This, to my way of thinking, is exactly the sort of thing that we need for Christian young people.

NEW MEMBERS (Continued from page 3)

R. Dale Jantze is superintendent of the Staplehurst Public Schools, Milford, Nebraska. He received his B.A. degree from Goshen College in 1951 and is doing further work at the University of Nebraska.

Winston Means Laughlin is a soil scientist for the U. S. Department of Agriculture in Alaska. He received his B.S. degree from the University of Minnesota and his M.S. and Ph.D. degrees from Michigan State College. His address at present is Alaska Experiment Station, Star Route, Palmer, Alaska.

George V. Roth teaches General Science at the Niles Township High School in Illinois. He received his B. Ed. degree from Milwaukee State Teachers College and his M.S. degree from the University of Wisconsin. His address is 1714 Howard Avenue, Des Plaines, Illinois.

Panel Discussion On Education*

Dr. W. L. Bullock, Leader

Dr. W. L. Bullock: I think that perhaps we'd better get along with some of the practical aspects of education from a Christian viewpoint and I think as we get involved with a discussion, probably some of these theoretical aspects will come right back to us. But the practical problem before us is the problem of presenting Christ in our Christian and secular colleges. A large part of the membership here is in the Christian colleges. Mine is not. Consequently, with all due bias let me skip over the Christian colleges, at least temporarily, and let's take some of the problems that are prevalent on the campuses of the secular colleges or common problems on the Christian campuses.

The main problem on the secular campus is "how far can we go as teachers in presenting Christ to the students with which we come in contact?" That's the question that always comes up whenever a representative of a secular college speaks in an Evangelical Christian Church. How far can he go? How far do you go? How much freedom do you have?

A large part depends upon the teaching field. In the natural sciences, unless we're involved perhaps in the teaching of the classes in general biology which includes a section on evolution or unless we're involved in the teaching of comparative anatomy which is usually centered in evolution, we very often can go our merry way without presenting Christ at all in the classroom or without coming into contact with Evangelical Christianity.

In the social sciences that is not the case very often because in the social sciences, many of you can testify, the philosophy of the teacher is very intimately and sometimes very subtly wrapped up into the presentation of the classes. I think that one of the points that many of us are aware of in attempting to help college students is that most of their real serious difficulties come not in the natural science courses but in the social science courses. My own personal experience has been one in which I had not much trouble. I was a little disturbed but I wasn't very much troubled in a real serious sense to hear my anatomy instructor refer to the events happening millions of years before Noah pushed his bed boat into the Ark. That was a rather shocking statement in the way it was presented but as far as shaking my Christian faith it had no effect whatsoever.

But going into history and English courses where references are made to the Scriptures, we find that the approach is of a different, more subtle and a more serious nature. In those courses where higher criticism is introduced, the entire faith of the student can be undermined. In my own case we had trouble in an ancient history course in which higher criticism was presented particularly with regard to the Pentateuch. That was before the days of Oswald T. Allis's book on the five books of Moses. That was a very serious problem and most college students of Evangelical background are not aware of the answer to those problems.

But the problem then of presenting Christ in the classroom is a problem, varying with the subject matter which you are teaching.

Another problem is, assuming that we can go a certain way or a certain distance in presenting Christ, what are the media which we as Christian instructors on a secular college campus can act? There are many media. The first that I would suggest is to work with the Christian students. I think that usually there is more often the case of Christian students and no Christian faculty members than there is a Christian faculty member without Christian students. Those of you who were at our devotions yesterday morning recall the pleasure that some of us had in comparing our experiences in being able to work with Christian students, working through the interest of our fellowship with other groups that are presenting Christ upon the campuses of our nation. Our help to these Christian students can be a very real help, a help in their personal problems, a help in their academic problems, an encouragement for them to present a much stronger and much firmer stand for Jesus Christ among their classmates.

Our presentation of Christ can take place actually in the classroom, perhaps. I think there the approach has to be a little bit cautious. It's rather a hard problem to define the difference between caution and compromise, but we do have to, when we are dealing with other people, adopt a cautious approach. But it isn't very long before the students know where you stand. It certainly didn't take very long in 1948 for the students on most of our college campuses to identify these instructors on the faculty who were supporting Henry Wallace. It didn't take very long before the word got around, and these people usually were not over-cautious and I don't know as we should be that over-cautious either.

Another aspect is in the office, particularly if you have advisory duties; you have students coming in, usually starting out with academic problems. They've gotten a letter from the Dean which has been passed on to you and most often the problem is lack of motivation which is getting to be a rather familiar term. Even here most often the lack of motivation is due to personal problems and sometimes it's rather interesting how these personal problems can lead to a discussion of the spiritual major.

And then we have another means of approaching the problem in a more concrete way, as Christian faculty members, particularly if we have a graduate program, and that is the encouragement of students to go into graduate work. I think the fine example we have in our Affiliation is Dr. Kulb who has gotten around himself a group of Christian graduate students, and I think those of us who are interested in institutions which are offering a graduate program should do all that we can to encourage part of our Christian students to go into graduate study. I think that being able to go into graduate study in an institution where you know there is a Christian man in your own field is of considerable help.

Mr. Baldwin: When we came to State College, we came because of the fact that the Inter-Varsity was

*Education Seminar Panel Discussion which took place at the Sixth Annual Convention of the American Scientific Affiliation; New York, August, 1951.

there and our children would at least have a chance to hear the gospel message once in a while and we found that that was the key point of our Christian life there. We found that our churches do not supply the need so necessary to have meetings where we could bring outside people to bring us the gospel message; therefore, on Saturday evenings we have a regular meeting and invite these people. We've had the pleasure of having Dr. Buswell and many others who gave of these fine messages. The group has carried on their own work. We are only here to help when they desire a place to meet and so on. It's entirely a student work, and they have the regular Bible study. The most remarkable thing happened last year in that they had much of their own Bible studies in their own rooms and have invited a student in which will start a group with two or three and then five or six. I suppose there are at least 100 students studying in that manner during the week.

Out of our prayer groups the same thing happens. I think there is one thing which we might realize that on nearly every campus there is a potential Inter-Varsity group, working with someone there. If you know of people who are at a college who are Christians and would like to get in touch with the Inter-Varsity, you should write and get in touch with these headquarters,, and the staff members will contact these students in the school and will help start a group. Also, there are many more groups than you realize; therefore, if you know of a Christian or some fellow who should be contacted on a campus, you should get in touch with the Inter-Varsity. We have many leads that way and have resulted in very much help for the student. We find that many Christians on the campus do not find us for six months to a year or a year and a half later. Yet we have ample publicity but they just don't realize that we exist until we are contacted. So those who are interested in this problem should contact us through the headquarters and they'll see that the names get down so we can contact them.

Another thing that I'm very much concerned with from the secular school like a state college, as Penn State is, and that is the ties that you are up against. As to our particular ties, I think they are rather open-minded and fair but in other colleges—in some state colleges—unfortunate things have happened and they do not permit Inter-Varsity on the campus and I think we ought to realize that tendency. Christian Association has always been very prominent on campuses,, carrying on good work and recognized by the authorities. They are looked to as the chaplain or the secretary to control and to direct the religious activities on the campus and through this group the churches work with the student pastor. Any action of a religious nature will usually come up through the Christian Association. In that way they have control of all effort on the campus and it's rather difficult for groups of the Inter-Varsity to carry out their program sometimes.

And it must be remembered that there are a great many students who are represented on the conservative side in many denominations. Many have their students on the campus and should be represented just the same as the other groups and I think if that's made plain to the university authorities, they will make sure that there is no more discrimination and we should recognize that.

Mr. D. Fetler: I was very impressed by what Mr. Bullock said a while ago regarding the influence that social science courses had on his thinking. I am deeply concerned with this problem because I am convinced that the real attack on Christianity is not in natural science but in social science. One thing that disturbs me very greatly is that schools like Wheaton College and Inter-Varsity organizations and so on do not seem to produce first rate economists as we might expect. I do not understand why the Bible-believing group in this country has almost ignored that field completely. Take Columbia University. We have a rather large Inter-Varsity group. There is not one economist there. In the entire department I know of no one who is a Christian. It's almost as bad with political science and almost as bad with history.

The result of this situation that we have been rather complacent with regard to social science is that we have everybody talking about social problems. Our theologians got into politics or economics by indirection with almost everybody else and the result is that it makes us look foolish in the eyes of science. We are, with respect to social science today—I mean not this particular group here perhaps but the Bible-believing group as a whole—pretty much in the same situation that we were let's say twenty years ago with respect to geology. Christian people made all sorts of statements about geology and anthropology which were strictly unscientific.

Today we know better. I can assure you we are making the same mistakes today in social science and we are just as ridiculous. We're just as out of place in terms of science when we deal with these economic and political issues.

My second point is this. In teaching I have a problem in trying to bring the gospel to these people. I must say that Inter-Varsity has been ineffective for the following reasons: It's a case of intellectual in-breeding. The Inter-Varsity group at Columbia seldom if ever has an outsider come in. They are always the same people, always cling together—a kind of mutual self-admiration society. What we've got to do is to reach out to the non-believing people, to the non-Christians and the only way to do this is by learning their terminology and their way of thinking.

When I start to discuss some problem in Christianity, I try to contact in terms of their own terminology, in terms of their own vocabulary and their own conception of mental structures. If you're going to converse with a baby, you've got to talk baby language. If you're going to try to do student work in the academic world, you've got to learn the academic language.

Mr. E. L. Hammer: I was asked to repeat the question, "What do I consider the solution to the teaching of religion in the public school?" Either the Nation's Schools or the School Executive—I think it's The Nation's Schools—has an article on the place of religion in public schools. One page consists of a tabulation by states of whether or not the active teaching of religion is prohibited in that state and then some estimate as to practice, that is whether there may be no practice of teaching religion in the state. I don't know what the count is but glancing over it I got the impression that 50% or more have no legal restrictions on the teaching of religion in the schools. The cases that we hear about, of course, are played up. They seem easy to generalize on that basis and,

say, the teaching of religion was prohibited, then it must be that way all over the country. The solution to it, I think, was very well covered by Dr. Bullock. I think his comments are equally applicable in the public school system. The only difference, I think, is that in the elementary or high school it's a little easier because you don't have this higher degree of education in matters religious on the part of the students, particularly at the teen age. Since there's been some comment about the Inter-Varsity, I'd like to make a comment about the Young Life Program which you may know something about. It may do the very thing that Mr. Fetler was talking about; namely, present their program in teen-age lingo. To you who haven't worked in high school or have been out of high school for awhile, you are probably aware of the fact that you don't always understand what's being said around you.

Particularly, fellows and girls who work with Young Life make it their business to know that lingo, and present Christ in terms which the teen-ager is very quick to understand. As for our crowd in Illinois, the Young Life group, I think I'm correct now in saying that they were officially organized the last year that I was there. Some fellows came over from Wheaton, not far away, and started to work. It was very rapidly accepted by the kids. They were very anxious to hear and to learn because here was a fellow who came in professing to believe in the Christian philosophy, reading the Bible, believing the Bible was true, and so on, who didn't get up and start to lecture, "Ah you can't do this and you mustn't do that and you must do this." He went to a football game with them and after the game went to somebody's house for cokes and potato chips, and they talked. That, I think, has been the most effective way. As far as teaching religion right in the classroom, it's just this matter of making your position known and when the opportunity presents itself to assert that position. I don't think you'll get very far by going out of your way to arouse antagonisms which are bound to arise. Again, it's the problem of caution versus compromise. I certainly wouldn't say compromise. On the other hand, there's no point in saying, "Well, from now on everything I say just carries no weight at all." I don't know if there is a simple solution.

Mr. Baldwin: I want to say this. One thing that we have observed—this has nothing to do with us personally—is the great desire on the part of the students for the gospel and we have had the greatest help from the freshmen. In Penn State we haven't had the freshmen except this last year. They have been off campus, and we've really had an unusual experience. We have gone out on Sunday evenings. The students usually were in their rooms, or a good many of them were, and I've knocked on doors and asked them if they were interested in coming to Inter-Varsity. The conversation got around to talking about the gospel. They've gone out in pairs, maybe ten pairs on a Sunday evening, and came back just amazed and overjoyed with what the Lord has done. I'm finding that the students are just anxious—they are very hungry for this information. They want to know all about it and there have been some amazing results; and that's just the student effort. At Penn State we have grown the last four years from a group of about fifteen, I would say, to around 50 or 60 and we have an attendance that ranges from 80 to 100 in our Friday

meetings. We think we have about 50 to 75 in these Bible studies every week and there are new people being brought in all the time.

Our biggest need is for people . . . to come to the campus and speak in the language of the scientists, students, engineers, sociologists, psychologists and all. I can assure you that there is always intense interest.

Dr. W. L. Bullock: At the University of New Hampshire, during this past year, we ran two of the Moody Institute Science Films. With the last one that we ran the thing that amazed us was the reaction among the faculty more than the students. Out of a student body of about 3,000 we had somewhere between 100 and 150. Out of a faculty population of 300 we had 70 people out to a faculty preview and the faculty of this state institution was more excited about this film than the students were.

Another aspect of this problem of witnessing on a college campus is that we shouldn't limit our witness merely to the students. I think we have a realm in witnessing to our fellow faculty members and it's sometimes amazing to see the receptiveness of these supposedly non-Christian or sometimes anti-Christian instructors on our college campuses.

In that connection I'd like to put in a little word here for another organization. I feel like putting in a plug for something here this morning, a group which is perhaps characterized at least by something such as being a little over-cautious but a group that is working primarily among leaders in the field of education, business, and the legislatures. This is the group known as International Christian Leadership. It works mainly through the establishment of breakfast and luncheon groups, with congressmen, with businessmen and now among educators. We had a little group of four faculty members up at the University of New Hampshire that used to meet one morning every week, at seven o'clock in the morning. Seven o'clock in the morning is a rather rough time along about February. They are a breakfast and Bible study class and we met in the resident dining room at the commons with a program of attempting to reach the leaders in these days of international tension and international crisis. We sort of skip over these people and feel they are too far gone . . . The mere fact that the situation is hopeless ought to be some indication that maybe they're looking for a hope, and we believe that we've got the hope that we can give them.

Mr. F. E. Houser: In regard to Mr. Fetler's remarks about the paucity of social scientists coming out of Christian colleges what can I say but Amen, for unfortunately it's true. I would like to say this though. Mr. Fetler is wrong if he assumes that there are no historians coming out of Wheaton College. I'm not making this merely personal but to point out the fact that we have a competent faculty in history. I can think of—and I've only been there two years—I know of at least four people who have come out and have gone into graduate work in history. I think it's a matter of competent teachers. It's sort of a vicious circle. There won't be competent teachers until the general public is convinced of the importance of social science. The very conflict we have here this morning between individualists and those who recognize the whole is larger than the sum. Until this particular problem is realized on the part of the

Christian public, we won't get social scientists. But as a matter of strategy, may I suggest that if there are those here who are convinced that social science is a useful field, may I suggest that you go to Christian colleges and not secular colleges to teach. Why? Because as a matter of strategy, I think it's more important to reach Christian students whom you can coach into graduate fields in social science who then in turn can go out into the secular fields. But as a matter of efficiency of getting numbers, of getting kids into these various areas, I think that teaching in a Christian college is the most important place because it yields the easiest results.

Since I've been there, I have managed to get two young fellows whom I hope, after they have served their time in the military services, will go into social sciences. As a matter of strategy I think it's important to go into Christian colleges at this point and time because I think you get many more interested candidates for social science degrees who then later can spread out into the secular colleges. This reasoning, of course, does not apply to the physical scientists for I think we have had quite a few products in that field and they've gone to secular fields and there are well equipped and adequate, efficient men in Christian universities. This is not necessarily true of social scientists in Christian colleges.

Dr. G. D. Young: I'd like to get back to this question of progressive education for a minute. I think Mr. Hammer knows me fairly well and he knows that if anybody's trying to build a better mousetrap, I'd like to be in on the ground floor of that too so if there is good in anything and I can adapt that good to my own work I think that he knows that I'll be glad to avail myself of that.

In this question of progressive education there seems to be an awful lot of smoke and you'll agree where there's a lot of smoke there's some fire. Let me start off by mentioning the question of morals. They say this is a terribly immoral age. People can always get up and make a speech on the terrible immoral situation that exists and then quote from some book in 1875. I'm not satisfied with that as an answer to the problem because I know it's true, in the moral field and in the educational field, the moral situation today is terrible no matter what it was in 1875, and even if they couldn't spell in 1875, they can't today either. So we're all interested in that problem.

Now, specifically, such a journal as *School and Society* brings a terrific tirade by an English professor; the kids can't write English; they had a bad chemistry professor; they can't handle mathematics. The graduate school in certain of our colleges won't receive transfer credits from teachers colleges. We have a school in New York City to train secretaries to spell. Many of the girls cannot file because they do not know their A.B.C.'s in order.

These situations exist. Now, I'm not saying this to be facetious. I'm simply stating a fact. This situation exists. Now, whether it existed any worse or any better a hundred years ago, I suppose statistics should show. I think we would have to have an awful lot of them to convince me, as you might imagine already.

What I am wondering—is there any correlation between the so called progressive system of learning in a living situation and putting down rote memory of the mathematical tables and so forth and so on and

putting off into the second and third grade number combinations bigger than 10; letting them in the first grade—little girls do their laundry and hang up wash and so forth and so on because they missed that in home experience? I'm not running down the system. Is there any relation between that system of teaching and the criticism of the graduate school outlook and mentality. Isn't there some sort of a compromise? Shouldn't we make use more of the old fashioned rote numbers system and so forth and so on? Should we allow ourselves to swing that way or the other or shouldn't we make some effort to get in between here some place and do a certain amount of training the mental processes?

Mr. E. L. Hammer: I've read enough of the journals of the proceedings of these meetings that I cut out some parts of my paper and one of them was on this very point. And I certainly wouldn't rule out the use of mending a rope. However, my problem now is to get the point across in a few words.

Let me say first of all that I think there's no group more discouraged about what has happened than educators. At a teachers' college, for instance, professors are always very careful when they use the word progressive to say, "Well I'm using it now with a small p" because they know that the term has gotten a very unfortunate connotation. So that progressive education with a capital "P" I'm not in favor of.

Secondly, I think this is an area in which, as I mentioned before, we tend to generalize and say that since progressive education methods have been introduced and since this particular student or even this group of students can't spell, therefore, it's the fault of progressive education and that, as you said before, would require some study in order to prove.

The reason I mentioned the reference to 1800 was simply that it's an unfair accusation to say that since newer methods have been introduced, people don't know how to spell. I would agree with you that the newer methods haven't been nearly effective as we would like them to be but I submit that they in time will prove to be more effective. I think part of the reason they aren't is because the kids who are exposed to this thing in school go home and have it knocked and they don't know what to do. They don't know if the teachers are right or if their folks are right or both or neither and always these things add to the complexity of the problem.

One other thing and that is that in this 8-year study that I mentioned, and other studies have been made, I think that we can show that the student who comes out of the school nowadays actually can spell better and can construct a better sentence and so on. In general they do better on any kind of a standardized test that you want to use. That may not be apparent in individual cases but there are studies that show that there are definite indications that there has been more progress made.

Then let me say this about memory work for example. I think you would agree that it's a difficult situation for a young person in school. I am thinking now of the elementary grades. Should a teacher convince that child that he should memorize names—let's take an exaggerated example now—that he should memorize the names of all of the presidents of the United States in a list, beginning with Washington and coming down to Truman, you know just the

reaction that you had and the reaction that your children have or the reaction that you've heard from children. "Well, what do we have to do now?" Well, now suppose ten years later this person meets a situation where he wishes that he knew the names of the presidents of the United States. Now are we justified in saying, "Therefore, he should have learned them all when he was in the fourth grade," or should we say, as I recommend, "It's up to the teacher to present the names of the Presidents of the United States in such a way that the students are going to learn them."

I taught chemistry in high school and I made it a point not to ask the kids in my classes to learn the names of the symbols for all of the elements. Now you chemists and other scientists are going to throw up your hands. I said to them, "For our purposes here, any time you want to know what the symbol is, look it up and I won't mind if you do that." Well, it didn't take me more than about 6 weeks before they knew all of the symbols that we were using. So I would agree with you that the job hasn't been well done though I don't think the fault was in the method. I think the fault was in an insufficient supply of adequate personnel and that, of course, is one of the things I'm campaigning for. I think we should put some of our best people into education rather than leaving that to people who can't make a go of it in other fields.

Dr. W. L. Bullock: I'd like to ask Mr. Hammer a question here myself. In recent issues of the bulletin of the American Association of University Professors there have been quite a few articles in which the writers have been very much concerned over what they feel is a growing intellectual laziness upon the part of the populace in general and upon the part of college students in particular. Now I think those of us who are interested in presenting Christian principles, whether it's in college or in a Sunday School class, are certainly aware that intellectually the students seem to be lazier than they were a good many years ago. To be even an officer in the church one used to have to know the Catechism and the Scriptural references to support it.

Do you think there is any tie-up between this intellectual laziness and progressive education?

Mr. E. L. Hammer: Yes, I think there's a very definite connection. I think that is one of the unfortunate results that has come out of what I consider scientifically adequate research studies.

In the first place, I think possibly—this is just a personal comment—the university professors are more worried about intellectual activity on the part of the general populace than they should rightly be. I don't know. That's a possibility. Further, the unfortunate thing has been this—I'll try to sketch it for you very briefly—one of the phases of this newer modern educational practices, one of the points they try to get across, is that to deny the student the right to progress with his social group may cause him more trouble in his development than to deny him the added time he needs for exposure to given subject matter content. I don't know if you follow me but here is a student in the first grade. At the end of the first year he hasn't completed all of the things we think he should have completed in the first grade.

Now the question is should we keep him back and make him go through all of that again or should we let him go on with the social group in which he has standing. Now there are advantages either way. If he goes on with his group, he's going to feel secure. He's going to be more ready to learn and there's every reason to think that he'll pick up a lot of those things he missed the first year. On the other hand, if he doesn't know his ABC's or he can't spell, or whatever it is, maybe he'll never learn. It's a question that requires a great deal of discretion in deciding. Sometimes it's better to push them on and sometimes it's better to hold them back.

Now the catch is this—and this is the important thing—so many teachers have simply heard that you should promote pupils with their groups, not merely because they passed but because they believe they should push them right out of the room. They think . . . "Well, we're supposed to pass them. Nobody fails. They are not supposed to fail."

I don't think it's out of order for me to criticize colleges. I think the colleges, particularly the smaller schools, as a matter of survival, have been willing to vary their standards of admission. I don't think the high schools, at least the thinking educators in high schools, would say that because this group of 200 students had graduated from our high schools, this gives the entire 200 a right to go to college.

On the other hand, a lot of graduates from high school are probably not ready to go on to college. Many colleges take in some of these less capable people and less suitable people and people who are not well trained. They don't do well in college and then the college complains about the high school. I question whether they should have graduated from high school but I'm pretty sure about whether they can do anything in college. Maybe some colleges will have to fold up and that will be too bad. We might be better off if we let these people just go ahead.

Dr. A. Eckert: I want to put in as an outsider and as a stupid scientist, a plug for progressive education. I consider myself Exhibit "A." I was exposed to progressive education and I've heard many criticisms of it. I think that a great deal of the difficulty—probably not all of it—lies in a very small area and that is this.

The reason that progressive education was so tasteful for me and, I feel, very successful, is that it was handled by an exceptionally competent staff of teachers. I feel that progressive education is a very complex type of activity which requires very careful special training of people who are especially capable to receive it. I feel that it was first presented by such a group. It was then very popular and so boards of education all across the country said, "Well, progressive education is fine. We want to be up to date. We want it in our schools so let's have it."

So they had it . . . handled by improperly trained, incompetent personnel. And one of the worst things that we can have is progressive education dealt out on that basis. So I think the area for success of such a system is to see that we have it handled by the proper type of people and rather than offer an objection or criticism of progressive education as a whole, let's look at it more carefully and more analytically and see what we can do with it.