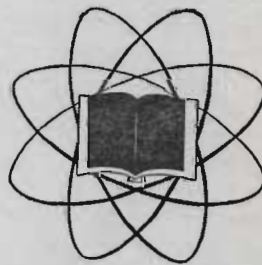


# JOURNAL

*of the*

# AMERICAN SCIENTIFIC AFFILIATION



*The fear of the Lord is the beginning<sup>2</sup> of wisdom. Psalm 111:10*

Volume 7

December, 1955

No. 4

# The American Scientific Affiliation

(INCORPORATED)

The American Scientific Affiliation was organized in 1941 by a group of Christian men of science. The purpose of the organization is to study those topics germane to the conviction that the frameworks of scientific knowledge and a conservative Christian faith are compatible.

## PUBLICATIONS

*The Journal of the American Scientific Affiliation* is issued quarterly. Its contents include primarily subjects both directly or indirectly related to the purpose of the organization, news of current trends in science (including sociology and anthropology), and book reviews.

*Modern Science and Christian Faith*, is a 316-page book containing ten chapters on nine fields of science, each written by a person or persons versed in that field.

A series of *Monographs* as follows:

No. 1. *Christian Theism and the Empirical Sciences*, by Cornelius Jaarsma, Ph.D. A 10-page booklet. "The data of the sciences are given their true structure when integrated in the unity of Christian thought based on revelational presuppositions."

No. 2. *Creation and Evolution*, by Russell L. Mixter, Ph.D. A 31-page booklet covering various aspects of the subject, and showing that limited creation is a reasonable belief.

No. 3. *The Eye As An Optical Instrument*, by Frank Allen, Ph.D. A 16-page illustrated booklet discussing the intricate marvels of the eye.

Other Monographs are planned for publication in the near future.

## EXECUTIVE COUNCIL

H. Harold Hartzler, Ph.D., *President*  
107 West Plymouth Avenue  
Goshen, Indiana

Brian P. Sutherland, Ph.D.,  
*Vice-President*  
Rossland, B. C., Canada

Hendrik J. Oorthuys, M. S.,  
*Secretary-Treasurer*  
435 Robinson Street  
West Lafayette, Indiana

Delbert N. Eggenberger, M.S.  
1121 East 81st Street  
Chicago 19, Illinois

John R. Howitt, M. D.  
P. O. Box 930  
Port Arthur, Ontario, Canada

# The Journal Of The American Scientific Affiliation

Vol. 7

DECEMBER, 1955

No. 4

## TABLE OF CONTENTS

Editorials . . . . .	2
New Members . . . . .	2
Review of Ramm, "The Christian View of Science and Scripture" on Anthropology . . . . .	4
James O. Buswell, M.A. Wheaton College, Wheaton, Ill.	
An Evaluation of "The Christian View of Science and Scripture" by Bernard Ramm from the Standpoint of Christian Theology . . . . .	7
Robert D. Culver, Ph.D. Wheaton College, Wheaton, Ill.	
Review of Ramm's "The Christian View of Science and Scripture" on Biology . . . . .	11
Russell L. Mixter, Ph.D. Wheaton College, Wheaton, Ill.	
New Genes . . . . .	12
John C. Sinclair Los Angeles, California	
Anthropology and Christian Attitudes About Culture . . . . .	15
William A. Smalley Nyack, New York	
Entropy In Relation to Genetics . . . . .	18
William J. Tinkle Albany, Indiana	
Can Christians Learn Anything from AA? . . . . .	21
Norvell L. Peterson, M.D. Beverly Farms, Massachusetts	
Anthropology . . . . .	26
Archaeology . . . . .	28
Biology . . . . .	30
Philosophy . . . . .	31
Psychology . . . . .	Inside Back Cover

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 435 Robinson Street, West Lafayette, Indiana. The subscription price is \$2.00 per year. Single copies may be obtained at a price of .50 each. Copies of back issues may be obtained at the price of \$2.00 per volume. Send all communications regarding editorial matters to the editor, Delbert N. Eggenberger, 1121 East 81st St., Chicago 19, Ill. Entered as second class matter January 23, 1952, at the post office at Goshen, Indiana, under act of March 3, 1879, as amended by the acts of June 11, 1934, and October 30, 1951.

---

## EDITORIALS

---

### Science and Scripture

Few books have stirred up as much discussion in the evangelical press as has Bernard Ramm's *The Christian View of Science and Scripture*. It may seem somewhat late for this Journal to now add another to a long list of reviews of his book. However, after reading some of them, it appears that it is now even more important that it be published.

Ramm has covered a variety of fields of science as well as theology in order to produce such a book. Scholars are extremely rare who have succeeded in completing an advanced education in both fields, as the author has done. As a result his book has been reviewed for the most part by those who fail to appreciate Ramm's point of view, and his work has often been quite unjustly treated.

Early last spring, Mr. James Buswell suggested to the Editor that each of the fields surveyed in the book be reviewed by someone trained and versed in that field. This should give Ramm's work a more accurate evaluation. The selected fields for coverage are Anthropology, Astronomy, Biology, and Theology. This representative sampling of scientific fields should therefore provide an appraisal of the general content and significance of Ramm's book.

---

## NEW MEMBERS

---

**John A. Buehler**, Anderson, Indiana, is an associate professor in Chemistry at Anderson College. He holds a Ph. D. degree in organic chemistry from Indiana University, and a Th. B. in Bible from Anderson College.

**Claude M. Hathaway**, Littleton, Colorado, is president and the chief engineer of the Hathaway Instrument Company. He is an electrical engineer from the University of Colorado, and he is chairman of the Board at Rockmont College.

**Malcolm T. Hapworth**, from Larchmont, New York, is at present a half-time teaching assistant at Purdue University, Lafayette, Indiana. He received his B. S. in Metallurgy from M. I. T.

**Martin E. Hoover**, Los Angeles, California, is at present a student at the University of Southern California at Los Angeles, working in math and physics. He received his B. S. degree from Purdue University in Agricultural Engineering.

**Eugene C. Jekel**, Holland, Michigan, is presently teaching at Hope College. He plans to return to Purdue University in the future to complete work for a Ph. D. in Organic Chemistry.

**William A. Johnson, M. D.**, is a physician and

surgeon in San Jose, California. He specializes in general surgery. He is a contributing editor of the Christian Medical Society Journal and has written papers for other medical journals.

**Raymond G. Lucas**, Minneapolis, Minnesota, received his Bachelor's and Master's degrees in Anthropology and Biblical literature respectively, and he is now teaching and working for a B.D. at Northwestern Schools in Minneapolis.

**Howard E. Sorrows**, of Silver Spring, Maryland, is employed as a physicist by the Office of Naval Research, Washington, D. C. Mr. Sorrows studied Physics at Baylor University, George Washington University and Catholic University.

**J. Edward Sunderland**, West Lafayette, Indiana, is a half-time research assistant and graduate student working for his M. S. in Mechanical engineering at Purdue University. He received his B. S. in this from M. I. T.

**Dale Swartzendruber**, Los Angeles, California, is an assistant soil scientist at the University of California at Los Angeles. He received his Ph. D. in soil physics from Iowa State College where he had also earned his B. S. and M. S. degrees.

**George A. Walker** of Chicago is a Tith-load dispatcher in the power supply office of the Commonwealth Edison Company, Chicago. He received his degree in electrical engineering from Illinois Institute of Technology.

**Floyd I. Zook**, Allensville, Pennsylvania, teaches for the Belleville Mennonite School Board. He received his B.S. in biology from Eastern Mennonite College.

---

## News Items

---

All officers of the A. S. A. were re-elected for the year 1956.

President: H. Harold Hartzler.

Vice-President: Brian P. Sutherland.

Secretary-Treasurer: Hendrik J. Oorthuys.

Delbert N. Eggenberger continues to serve both as a member of the Executive Council and as Editor of the Journal. John R. Howitt continues as the fifth member of the Executive Council.

---

## 1956 Convention

The Eleventh Annual Convention of the American Scientific Affiliation is to be held at Wheaton College, Wheaton, Illinois August 21-24. Committee appointments are as follows: General Chairman: Dr. Paul M. Wright, Wheaton College; Committee on Papers: Dr. Donald H. Porter, Marion College, Dr. Arnold C. Schultz, Northern Baptist Seminary, Professor James O. Buswell III, Wheaton College. Dr. Porter is serving as chairman of the Papers Committee.





**1955 ASA CONVENTION PICTURE**

First row: Frances Sutherland, Joyce Sutherland, Mrs. Brian P. Sutherland, Nancy Bowerman, Barbara Bowerman, Mrs. Harley Bowerman, Harley Bowerman, Gregory Dilworth, Mrs. R. P. Dilworth, Dolores Erickson, Dorothea Erickson, Mrs. Wallace Erickson, H. Harold Hartzler, Alan Meyer, Brian P. Sutherland, H. A. Meyer and son Gene, Mrs. H. A. Meyer and Lois, Mrs. John Sinclair, Mary Beth Sinclair, John Sinclair, Martha Sinclair, J. Lowell Butler.

Second row: Paul B. Stam, Russell L. Mixter, Paul R. Brooks, Carol Doty, Lois Eliassen, R. P. Dilworth, Bob Dilworth, John R. Howitt, David Erickson, Irvin A. Wills, Richard Hendry, Maurice A. Yoder, Russell C. Artist, Herb Seal.

Top row: John E. McLennon, Wallace O. Erickson, W. Roger Rusk, Martin A. Price, Wayne F. Frair, Maurice M. Burkholder, Kenneth L. Pike, Donald S. Robertson, Charles W. Taylor, George K. Schweitzer, Hartzell Cobbs.



**FOSSIL HUNTING AT THE FLORISSANT FOSSIL BEDS**

# Review of Ramm, *The Christian View of Science and Scripture, on Anthropology*

JAMES O. BUSWELL, M.A.  
Wheaton College, Wheaton, Illinois

From the anthropological point of view, Ramm is well read and achieves a nice balance of emphasis with regard to the questions of racial unity and antiquity. Capturing the essence of scientific as well as theological teaching on the unity of the human race, introductory to considerations of its antiquity, he makes the observation that "The sin of Adam imputed to humanity depends on the unity of humanity, not on the antiquity of humanity." (P. 308)

The discussion of the age of man is limited to the consideration and disposal of several incorrect notions about the study of fossil man, (including a very sensible treatment of the Piltdown fraud), and a brief consideration of Ussher's chronology. Illustrative of Ramm's position is his belief that "the anthropologists are generally correct in their dating of man," and that as far as the Bible is concerned "we must admit that any date of the antiquity of man is an inference from the Scripture, not a plain declaration of Scripture." (P. 314)

Regarding one of the "incorrect notions" Ramm points out that

The hyperorthodox creates the impression that the study of fossil man is filled with guesses, surmises, and fanciful reconstructions to the degree that the entire procedure is very unscientific though carried on by scientists in the name of science. (P. 310) . . . he has no idea of the amount of knowledge scientists have of bones, human and primate, and how much they can tell from a bone. Hundreds of facts are known about the dentition of man and monkeys, and the amount of information deducible from a jaw bone is nothing short of fantastic. (P. 313) The anthropologist cannot be discounted any longer on the grounds that all he has to work with is a basketful of controversial bones. . . We are now sure that there are fossils of man in places where they were not washed up nor covered up in some superficial drift but are part of a datable geological sequence. (P. 309, emphasis Ramm's).

It is time Creationists realized this situation. Too many are still considering the fossil men as "fictitious monstrosities" and holding to the faulty notion that anyone who accepts them as facts is automatically capitulating to the evolutionary hypothesis. The general reaction in Christian circles to the Piltdown affair was indicative of this. I quote Ramm's concluding paragraph:

The real issue is this: *are the sciences of anthropology and geology working with reliable methods?* Because the first two efforts of immunization against polio failed, is all medical science discredited? To what extent does one or a dozen mistakes discredit any science? The point is this: (i) we do not dis-

credit other sciences wholesale because of even sizeable blunders, and (ii) the Piltdown hoax was discovered by the use of scientific methods. *The hyperorthodox are enjoying the exposure of the hoax only because of the reliability of the scientific methods employed and the honesty of the scientists.* The real meaning of the Piltdown hoax is not that a prop has been pulled out from under the evolutionary theory, but that the methodology of the sciences is trustworthy. The exposure was only possible because of the methodology employed.

To put it very plainly: if the anthropologists and geologists cannot be trusted, *we cannot even trust the exposure of the hoax!* (Pp. 312-313, emphasis Ramm's.)

Next the discussion turns to a sampling of various beliefs about man's origin, or the nature and time of his creation. The author critically examines several presuppositions of one extreme or another: the Ussherites; those who believe that fossil man was pre-Adamic and different from Biblical man; Brunner's position; various forms of theistic evolution; and finally the position held by Smalley and Fetzer, that

Adam is as old as the anthropologists say man is. . . . God made man directly several hundred thousand years ago. (P. 326)

This seems to be the position which at once makes the most sense scientifically, and necessitates the least amount of interpolation Scripturally. Warfield's statement, quoted by Ramm, is that "(The antiquity of the human race) has of itself no theological significance. It is to theology, as such, a matter of entire indifference how long man has existed on the earth," though directly opposed to the propositions of many who argue for the recency of man, can hardly be challenged on Scriptural grounds.

On the Origin of Races and Languages, Dr. Ramm treats two important subjects. First, the question of the derivation of all races from Noah, and second, the question of the derivation of all languages from the Tower of Babel.

The discussion of these questions relates closely to the author's conclusions on the flood and its extent as far as man is concerned. Briefly, Ramm's position is that the flood was a local one, a position which, he states, "most of the recent conservative scholarship of the church defends." George F. Wright's article in the *International Standard Bible Encyclopedia* may well be cited as a standard reference for this position. Ramm goes one step farther, however, in his acceptance of the view that the flood needn't have constituted a judgment on *all of mankind*.

If the flood is local though spoken of in universal

terms, so the destruction of man is local though spoken of in universal terms. (P. 239)

There is a body of geological and paleontological data advanced in some evangelical quarters in support of this position, but the particular line of reasoning followed in this cause by Ramm seems rather inconclusive. The only factors supporting the conclusion are (a) "The record neither affirms nor denies that man existed beyond the Mesopotamian valley," (p. 239), (b) ". . . there is evidence for the existence of man many thousands of years *before the flood*" in Africa, India, China, and America, (pp. 239-40, emphasis mine), and (c) "If the evidence is certain that the American Indian was in America around 8000 B. C. to 10,000 B. C., then . . . a universal destruction of man must be before that time, and due to Genesis and Babylonian parallels<sup>1</sup> there is hardly an evangelical scholar who wishes to put the flood as early as 8000 B. C. to 10,000 B. C." (P. 336). Two comments seem to be called for at this point. First, that in claiming man's existence on other continents "before the flood" Ramm is assuming the time of the flood to be relatively recent and relatively settled; and secondly, it is not clear, from Ramm's discussion nor from Wright's, just what the Genesis and Babylonian parallels have to do with the flood's being necessarily later than 10,000 B. C. Certainly it occurred before the writing of the tablets and of Genesis, but there seems to be no reason why, from Ramm's data, it could not have been much earlier than the dispersal of mankind to America, and thus be interpreted as including all of man, even though limited geographically.

One important consideration to remember is that if all mankind was judged by the flood, *It had to be before the Americas were populated*. Had the flood submerged a populated America there would be evidence of a pre-Indian physical type somewhere in North or South America. We can be sure that if the present Indians have descended from Noah, they would certainly be racially different from any "American" predecessors, simply from the length of time necessary between one occupation and the other. Genetic variation would have precluded any chance of two even closely similar races appearing with that much time between them. All archaeological evidence to date has revealed only one basic racial type of American Aborigine—prehistoric or historic, namely, the modern Indian type.<sup>2</sup> Therefore, there appear to be two alternative positions: (a) that the flood occurred considerably longer ago than is generally admitted, in order to allow for subsequent dispersal of the American Indian from Ararat to the length and breadth of the Western Hemisphere by at least 10,000 years ago; or (b) that the flood was not a judgment on all of mankind. Ramm holds the latter, presuming that only the Caucasian races need be descended from Noah; and similarly, only the Caucasians' languages,

the primitive Indo-European stock, need be derived from the dispersal from the Tower of Babel. (P. 340)

I would like, now, to examine briefly Dr. Ramm's view of theistic evolution as revealed in his consideration of it as one of the five possible presuppositions as to the origin of man (pp. 315-331), which is based upon his discussion of the subject in the chapter on Biology. In the Epilogue the summary allegation is made that:

"It is not true that all evangelicals believe that evolution is contrary to the Faith. Most Fundamentalists and evangelicals are opposed to evolution, to be sure, but we have given evidence to show that men whose orthodoxy is unimpeachable have accepted some form of theistic evolution or at least were tolerant toward evolution theistically conceived." (pp. 345-348)

While I substantially agree with the allegation, I would suggest that it is a dangerous one to make without a much narrower set of criteria for defining a "theistic evolutionist" than Ramm chooses to set up. If "the issue is between fiat creation and theistic evolutionary creation" (p. 282 fn.), then the problem may be viewed in terms of a controversy over origins alone. In this view of theistic evolution, the Roman Catholic Church is a primary example, "not pledged to any theory as to the secondary causations for the origin of life. It tolerates either evolution or special creation . . ." (p. 283). Ramm refers here to the Catholic scholar J. A. Zahm. Here too would belong protestant men like W. N. Rice, (p. 284); J. C. Jones, James Orr, and C. W. Shields, (p. 286); L. F. Gruber, (p. 287); A. R. Short, (p. 287,8); and Albertus Pieters, (p. 288). All these men are, in one way or another, attempting to reconcile either the *origin* of life, or the *origin* of man as the then current form of the evolutionary theory presented them, with their interpretation of the scriptural account.<sup>3</sup>

I would like to call attention, however, to a distinction which Dr. Ramm does not make, between this view of theistic evolution and the view of some which Ramm includes in the same broad category. While the view described above may be seen in terms of the problems of origins, there are those whose concern is merely with the problems of process and development and who are not rightly called "theistic evolutionists". Among them are James McCash, ("There is nothing irreligious in the idea of development." Ramm, p. 285); R. A. Torrey, (" . . . applied within limits to the animal world," Ramm, p. 287); R. L. Mixter, ("As a creationist I am willing to accept the origin of species from other species. . ." Ramm, p. 288); W. L. Bullock, (" . . . it is ill advised to champion the cause of fixity of species under the banner of Christianity." Ramm, p. 289); and J. W. Dawson, (" . . . no objection to it if understood to mean the development of the plans of the Creator in nature." Ramm, p. 285. " . . . it is plain that revelation gives us no definition of species as distinguished from varieties or races, so that there

is nothing to prevent the supposition that, within certain limits indicated by the expression 'after its kind', animals or plants may have been so constituted as to vary greatly in the progress of geological time." Ramm, p. 289 fn.); all of whom Ramm lists in the same general category as those previously mentioned.

Summarizing on page 289, Dr. Ramm says, "To this point we have shown that evolution *with all necessary qualifications* has been adopted into both the Catholic and Protestant evangelical theology. . ." (Emphasis mine.) But he goes on to say without qualifying the term, that "The charge that evolution is antichristian and that theistic evolution is not a respectable position, is very difficult to make good in view of the evidence we have here given." (Pp. 289-290.) Thereafter he uses "evolution" in reference to "theistic evolutionists" without always specifying their "necessary qualifications." I submit that the above-mentioned "charge" is not "difficult to make good" if these distinctions between the two are kept in mind.

Those whose preoccupation is with origins, I believe, may properly be called "theistic evolutionists". This is essentially a head-in-the-sand position and has been traditionally an intellectual no-man's land, holding the respect neither of the scientists nor of the majority of Fundamentalists. With specific reference to the origin of man, they are characterized by Ramm as "Those who . . . tack man's origin on to their general belief in theistic evolution and believe that at a certain point a pre-human became a human, and that was Mr. Adam." (P. 322.)

But these indictments certainly do not apply to those who hold, with the men cited in the second category, that the hereditary processes of genetics, and the geological processes of prehistory are scientific and open to investigation and provide a valid explanation for the variety in nature—paleontological series and present varieties alike—but who do *not* believe in any evolutionary explanation of the origin of either life or man. One might just as logically call them "theistic speciationists" or believers in "theistic Mendelism" or "theistic stratigraphy". Genetics and geology have played a big part in the expression of the evolutionary hypothesis but they neither one, nor in combination, constitute evolution. Both can be considered entirely independently of evolution. Dr. Ramm knows this, of course, and does not begin to go as far as some who categorize anyone who admits of any process at all in God's creative activity as automatically a theistic evolutionist. One might as logically call a Christian weather forecaster a "theistic meteorologist" because he believes the laws which God created operate as observed, when non-christian observers believe and rely upon the same law!

Whatever else may be said of Ramm's treatment of anthropological problems in the Christian view of science and scripture, it cannot be said that he lacks

evidence of an industrious and conscientious effort not only to become familiar with present-day anthropology as it relates to Biblical questions, but to acquaint himself with a host of representative Christian opinion from both the well informed, as well as the uninformed authors in the field.

There is nothing in his text that this reviewer can detect which would warrant the accusations that it "embodies a number of drastic departures from the standard of faithfulness to the Word of God," or that it is "Dangerously slipshod and inaccurate," or that "this is a desperately bad book." Such statements have accompanied reviews which have largely missed the intent of the author and have thus, in many specific instances, taken him quite out of context. But then, Dr. Ramm can expect to be sharply criticized by those "hyperorthodox" whom he so severely indicts. They exhibit the negative, reactionary type of mind which does not analyze what is actually written, but revolts at the impact of first impressions. One is tempted to conclude that the mind was made up that "this is a desperately bad book," before it (or the mind) was ever opened.

#### NOTES

1. He refers here to twelve Gilgamesh tablets discovered in 1872 by George Smith, the eleventh of which describes a Babylonian flood. See pp. 247-249.

2. Some discrepancy, seemingly straight out of the *New Yorker* magazine, is noted in Ramm's several references to the antiquity of the American Indians. On page 317 "he has been here for about 20,000 years according to some estimates." Ten pages later we must consider the possibility of man being in America "as early as 10,000 B.C.", and also "must keep in mind the date of arrival of the American Indian in America (about 8000 B.C.)."

3. Dr. Ramm is careful to point, however, that all of these authors do not agree on the *implications* of such a theory of origins. For example: "Orr does not tolerate any weakening of the doctrine of sin and guilt because of man's evolutionary origin: 'Nor can I agree with those theologians who, sometimes with a light heart, make capitulation of the whole position to the evolutionist, and accept the consequences in a weakened doctrine of the origin of sin and guilt.'" Ramm, p. 325; Orr, *The Christian View of God and the World*, 1897, p. 158.

Aug. 20, 1955

Dear Brother Buswell:

I appreciated much your review and correspondence enclosed. The book will have served a good purpose if it does nothing else but drive our evangelical forces to a more careful and thorough study of scientific problems. I trust that my book means that a man may no longer write in the Rimmer-Sanden tradition even though they may agree with their conclusions.

Concerning your own review may I make the following suggestions:

(i). Page 4, re the flood and Babylonian parallels. I am maintaining here that *something* must be said as to the Babylonian parallel. Believe that common oral tradition was handed down for 5,000 years so that the



Babylonians had received it, or what you will. The parallels between Genesis and Babylonian materials is too close to be sheer accident or verbal coincidence.

(ii). p. 5, re only a part of humanity eliminated in the flood. I would appreciate a comment here that this is not *de novo* my idea, but as I cite in the text, it was held by Dawson more than 60 years ago.

(iii). p. 7, etc. Perhaps the better word (than "theistic evolutionist") here would be "developmentalists." I guess Mixter has come in for some criticism of his use of "micro-evolution" for I note in recent exposition he drops it. Thus there would be "theistic evolutionists" and theistic developmentalists."

(iv). p. 9, fn. 2. My original MS read 20,000 all the way through. Then Kulp called my attention to

the fact that radio-carbon dating had pulled these dates down to around 10,000 B.C. Now it is true that some do estimate man's coming to America at 20,000 B.C. At least at the time of my research and that is why I put in "according to some." The real contradiction is between the 8,000 and 10,000 dates.

Thanks again for your interest and sympathy with my general position. With some of the very mean criticisms I have been receiving, it is a comfort to get some Amens from solidly evangelical men. From the book reviews I gather that the book is getting a better reception in Britain than here. A special British edition is coming out shortly.

In His Grace,  
Bernard Ramm

## **An Evaluation of *The Christian View of Science and Scripture* by Bernard Ramm from the Standpoint of Christian Theology**

ROBERT D. CULVER, Ph.D.  
Wheaton College, Wheaton, Illinois

It was the reviewer's good fortune to be able to spend some time with one of the early review copies of this book shortly after its publication in the fall of 1954. Upon the impressions derived from this cursory examination he prescribed it as required supplementary reading for two large classes in Apologetics at Wheaton College in the Spring semester. During this period of class use two careful readings were given most of the book and class reactions were tested. As reviewer and user of the book I can report my own appreciation of the high value of the book as an addition to Christian apologetical literature together with one general observation and several critical evaluations.

The general observation is that most of the leading theological ideas of this book are not original. Positions taken on the antiquity of man, the flood, phenomenological language of the early portions of Scripture, creation, the creative week, evolution, and kindred subjects are in few cases new ones. Almost without exception they are at least partly described and/or advocated in the 1950 edition of the American Scientific Affiliation's science symposium *Modern Science and Christian Faith*. In fact, none of the diligent ministerial students who have studied Strong's *Systematic Theology*, and who read and remember the fine print in that noble work will be surprised by many truly fresh ideas. Geo. Fred. Wright's article, "The Deluge of Noah," followed in part by Ramm, has been in the *International Standard Bible Encyclopedia* for over a quarter of a century. The older conservative introductions, both to Old and

New Testaments, including such venerable works as Horne's *Introduction*, read now for over a century, advocate in whole or part most of the positions taken or described by Ramm. In fact, he might be interested to know that Harry Rimmer frequently spoke at length in favor of the local flood theory.

These remarks are not intended to reflect adversely on either this book or its author. Ramm is very careful to give complete documentation and to give proper credit to his sources. They are rather to point up two very important facts: 1) This book gathers into one volume the data lying dormant and almost forgotten in scholarly works now fifty to one hundred years old. Fundamentalists, in the main, for a generation or two have been fighting (and quite necessarily so) on other fronts. We have been the have-nots institutionally and educationally. Fundamentalist education has even now hardly come of age. In this connection it should be noted that the A. S. A. science symposium, above mentioned, has done the same for a small section of the conservative evangelical public—mainly for teachers and college students. And, on account of the composite authorship of that work it has not made quite the impact, even in the limited circle of readers, that Ramm's book has already made. This new book has brought the fundamentalist reading public up to date—or will soon do so, for, blessed or damned by its reviewers, it seems destined to be read. 2) This book and its author should be treated with the same courtesy and reserve of temper that we have given believing scholars such as Green,

Strong, Kyle, Wright, Orr, and others whose ministries have been appreciated and respected but whose ideas in certain areas were received with caution or even rejected. If I may let reviewer's reserve be hanged a minute, what I am trying to say in as nice a way as possible is this: Do not rush out and hang this good man's hide on the fence because he happens to be saying before the sun what a good many fundamentalists scholars have been saying in small circles for ten years or more! Was it not Poe who wrote something about "Dreaming dreams no mortal ever dared to dream before"?

Questions and objections related to the theological positions of this book will come later. Before getting down to that business the record should be set straight as to Ramm's basic position in theology. Some may get their only impressions of the book from reviews and should not be led astray on this point by the emphasis usually given in reviews to defects, real or supposed.. In the past few days I have read the book through for the third time mainly to draw from it the author's own theological beliefs. The fruit of the search has been reassuring.

He takes his stand (pp. 37-39) as "Protestant, Biblical, Conservative, and Trinitarian." In doing this he further dissociates himself from that rather variable system called Neo-orthodoxy by rejecting one extreme of the movement in Bultmann (a European N.T. scholar who holds the Bible to be a congeries of mythology pp. 119-122) and the other in Brunner's (following Kierkegaard) strong rupture between the spheres of revelation and of history (p. 38). Ramm asserts that "The Incarnation and Resurrection are in the stream of history." He likewise frequently names and rejects modernism or liberalism (p. 108, e.g.). It is of interest to know that contrary to some evangelical theologians he believes in old-fashioned "natural theology" (pp. 80-82).

Orthodox doctrines which he plainly receives are: the virgin birth of Jesus (pp. 39, 293-296), the incarnation and resurrection of Jesus (p. 38), the resurrection of the body (p. 82), creation (many pages), etc.

Last mention is given here to "Inspiration" inasmuch as this is the precise point at which Ramm's difficulties with contemporary fundamentalists are bound to come. It seems to be clear that Ramm accepts a high view of inspiration. "The author of this book believes in the divine origin of the Bible, and therefore in its divine inspiration; and he emphatically rejects any partial theory of inspiration or liberal or neo-orthodox views of the Bible. If what follows disagrees with cherished beliefs of the reader, be assured it is not a difference over inspiration but over interpretation" (pp. 41, 42). On page 305 he appears to associate himself, by way of contrast to Brunner, with those who accept "the plenary inspiration of Scripture" (Plenary means full.). He accepts "the

*a priori* of Divine Creation and the inspired account" (p. 256). In similar fashion he takes the position of "a Christian believer in the inspiration of the Genesis record." He further specifies: "We believe that the true position is that the revelation of God came in and through the Biblical languages and their accompanying culture. Coming through these cultures it became meaningful and relevant; and *being inspired of God the writers were restrained from error* (italics mine). In view of what we know of pre-scientific cultures, ancient and contemporary, it appears *miraculous* (italics mine) that the writers of the Bible are as free of the grotesque, the mythological, and the absurd" (p. 71). It is probable, being quite precise in his diction, that Dr. Ramm really means miraculous by miraculous and not merely marvelous. Considering that these are incidental remarks and not studied definitions of a doctrine of Holy Scripture, these are about as satisfactory statements as may be fairly asked. Those familiar with the works of Hodge and Gaussen among the older writers, and or Warfield, and still more recently of a number of their disciples among contemporary fundamentalist writers will quickly observe obvious acquaintance and approval of their ideas in Ramm.

Although he is careful to avoid specifically using the term of himself, and though he is obviously embarrassed by connotations of the term (and who isn't?), Bernard Ramm, B.D., M.A., Ph.D., is a Fundamentalist. And, I think he should admit it. Furthermore, we had better claim him and keep him. There has not been one like him among us for quite a while and we might not get another right away.

Now, further inquiry must be directed to discovery of evidence of any inconsistency in the book. Does the author at any place in his book champion ideas which are inconsistent with his own stand on the inspiration of Scripture? And, further, granting that he honors the Bible as the very Word of God, does he misinterpret it in any way? He aims to believe in an inerrant book and also to accept the results of contemporary scientific inquiry. Where there is apparent disagreement he feels that either the results of science are faulty as yet, or else the interpretations of Scripture are wrong. Now, whether he realizes it or not, Ramm has made most of the adjustments from the side of reinterpreting Scripture. Has he mis-interpreted it as well? Furthermore, is it possible that in accepting so much from science, as if it were final science, has he become inconsistent with his view of Scripture?

Suppose the questions be reduced to one: Can Ramm's positions be consistently squared with legitimate Biblical interpretation? There are some areas in which a distinction between *legitimate* and *correct* must be made. Devout students frequently disagree as to the meaning of portions of Scripture—yet these

same students may have drawn legitimate conclusions. There is a large area within which legitimate difference of opinion must be allowed. Let selection be made of four prominent items: the antiquity of man, the nature days of the creative week, the extent of the flood, and the place of death in nature.

Ramm accepts the findings of anthropology as to the remote antiquity of mankind. He leans heavily upon the work of Smalley and Fetzner in *Modern Science and Christian Faith*. Periods of up to half a million years are suggested. Very reluctantly this reviewer has come to the place that he feels that the genealogical material in Genesis is not to be used as a basis for chronology, but that gaps must be recognized. The reasons for this change are too lengthy to be reported in this connection. However, when once the principle of gaps in the genealogies is adopted there is hardly any limit to be placed on the number that might have occurred. So while it must be insisted that the Bible does not require such remote antiquity for man, it seems to be legitimate to suppose that Scripture allows it.

As to the nature of the days of the creative week, the author adopts a view very similar to that which Strong called the "Pictorial Summary" View, and which was advocated also by M. G. Kyle. The work of God in creation is said to be pictured to the Bible reader under the figure of six successive days, which six days also in a general way correspond to the actual order in which things came into existence. Thus it combines elements of the Revelatory View and the Indefinite Age View. A necessary accompaniment of this view is either theistic evolution or progressive creationism. Ramm, seemingly without misgivings, forthrightly adopts progressive creationism (as do several other recent and contemporary fundamentalist writers). This view is that the various basic (micro-evolution is adopted) forms of life were *fiat* created by God at important junctures in geological history and introduced into the natural order. This reviewer fails to see anything contrary to the spirit or general teaching of Scripture in this. Various elements of the theory have been held for years by wellknown conservative scholars. The casual or naive thinker who equates creation with a simultaneous snap into existence of the world order will have scarcely more difficulty with creations over a period of geological ages than over a period of 144 hours.

Ramm adopts the local flood theory—a rather special form of it. Being faced with evidence of man's presence in almost all quarters of the globe at a time far previous to the earliest possible date of Noah he is also faced with the rather well-recognized problems connected with a universal flood. It is precisely here, in the synthesis of the exegetical and scientific data that I think Ramm makes the great error of the book.

He does not suspend judgment, as at certain other places, but insists on a solution's being made. He appears to arrive at one in direct contradiction to the exegetical data. He claims that the interest of the Genesis account is only in the group of cultures from which Abram was to come (p. 240). Therefore, it is to be assumed that that culture alone among several antediluvian cultures was obliterated by the flood. Present-day mankind is not derived in whole from Noah since a majority of the earth's population survived the flood in the areas which it did not reach. This helps us out of difficulty with fossil men many thousands of years old in Oregon and Java, but what does it do with Genesis? No one should question the possibility of holding to verbal (or plenary) inspiration while holding also that certain universalistic statements like those in Genesis 6-9 concerning the flood really should not be interpreted universalistically. Certain have questioned this possibility. Yet, however inconsistent it may seem to the reader, this very phenomenon of exegesis is as common as good Calvinistic commentaries and theologies. A strong Calvinist must bring his doctrine of limited atonement to such universalistic passages as II Cor. 5:19, "God was in Christ reconciling the world unto him," and Isa. 53:6, "All we like sheep have gone astray . . . and the Lord hath laid on him the iniquity of us all." Others are John 3:17, I John 2:2, I Tim. 2:6. When he does so he usually argues that these universalistic terms include only the elect. He may be right or he may not be. The point is that the staunchest defenders of verbal inspiration have frequently been Calvinists who argued in this manner.

Ramm, therefore, is following a long line of interpreters reaching back to the patristic age in this aspect of his procedure. His mistake is in failing to come to grips with the obvious fact that the destruction known as the Flood was intended of God to go as far as the human race had gone.\* How does Ramm know that the first eleven chapters of Genesis are interested only in the ancestors of Abram? It appears to be mankind as a whole that the record is treating. The striking appearance of HA' ADHAM (mankind) and the cognate HA' ADHAMAH (ground) make it clear that the race, the origin of which is described in precisely these terms (Genesis 2:7) is under consideration. This is only part of the data. He rejects the well-formulated argument of G. F. Wright, who in the I.S.B.E. ("The Deluge of Noah") sets forth a theory of a limited flood that also accounts for the obliteration of the human race except for Noah and his family. Wright presents evidence to show that however widely scattered the race may have been previous to the flood, the glaciers of the last ice age had

\*Dr. Samuel Schultz of Wheaton College, makes this same point.

driven it back to the region of Mesopotamia. It may be legitimate to believe in a local flood, but hardly so, in this reviewer's opinion, to insist on the destruction by it of only one small segment of the human race—if honor is to be done to exegesis.

Ramm holds that death in nature has no relation to the fall of man—that only in the human family is death the fruit of sin. Whatever may be said as to the irrelevance of predictions of the elimination of death (at least of carnivorousness) among animals in the millennial earth (Ramm contends they are irrelevant), there is other Biblical evidence that is relevant. This evidence he appears to ignore studiously. There is Romans 8:19-22, which reads in part: "For the earnest expectation of the creation waiteth for the revealing of the sons of God. For the creation was subjected to vanity, not of its own will but by reason of him who subjected it, in hope that the creation itself shall be delivered from the bondage of corruption into the liberty of the glory of the children of God. For we know that the whole creation groaneth and travaileth in pain together until now" (A.S.V.). That this has some relation to the state of nature before the fall and to the effect of the fall on nature is close to a certainty. This reviewer has no final answer to the problem of death in nature—It has obviously been a part of earth's history previous to Adam's sin through eons of time—witness the fossils, oil deposits, etc. Ramm requires a harmony of science and Scripture at this point, and in the opinion of this reviewer, achieves it at the expense of Scripture. He doesn't misinterpret the Bible appreciably at this point, he simply ignores it. Several readings did not turn up a reference to the above mentioned Romans passage. The Scripture index passes from Romans 5 to Romans 10 without any notice of Romans 8. This reviewer has no certain solution to offer to the problem, but neither has he written a book on the harmony of science and Scripture. Rather than to ignore this important passage, perhaps the most significant in the whole Bible in relation to a Christian philosophy of nature, would it not be better to simply recognize the problem and suspend judgment. Might I even timorously suggest the possibility that Ramm exhume the reconstruction hypothesis? It displays some superiority at this point at least. The author believes in fallen man—is quite orthodox on the point. He does not believe that nature is fallen, or abnormal in any way. It appears that once

more he is hung up, not this time on faulty exegesis, but on want of exegesis.

This book can be further criticized adversely for the failure of the author always to indicate whom he cites or quotes with approval and whom not. It is doubtful if he believes in a "mythological" interpretation of the early narratives of Genesis (see p. 324) but it is difficult to know that he does not because of this failure. He probably does not accept the Vellhausen analysis of the Pentateuch, but at least one other reviewer has gained the impression quite excusably, that he may, on the account of this same lack of care.

Perhaps the most excusable defect is the reactionary intellectual and emotional level at which some of his judgments are made. An example is the treatment given the Scofield Bible. The defects of that book, which is after all really a commentary on Scripture rather than a Bible, are fairly well-known and well-recognized by scholars. But the fact that a note on Genesis 1:2 appears to advocate the gap theory (or reconstruction theory) while on the word "day" later in the chapter another note appears to support the "geological ages" theory does not mean that Scofield and company were as addle-pated as Ramm seems to think. It only means that it is a composite work—that the editors were not in full agreement, or were reserving judgment, and aimed to represent differences of opinion within limits. His caustic reference to the "Plymouth Brethren Theology" (p. 9) along with a decidedly loaded crack at "narrow evangelical Bibliicism" is in poor taste, far below the mature standard set for the main part of the book, the author of which well knows how much he owes to some of the unnamed gentlemen covered by those phrases. Let Dr. Ramm remember the "pit from which he was digged." He is most objective and reserved except at the point of reaction against his own theological ancestors. It is understandable, but hardly fair.

In the main the book is written in good spirit. Opinions expressed are generally presented with proper reserve. It is clear that many judgments are tentative—ones the author will feel free to abandon for better ones if they become known. Some of these the reviewer hopes will at least be revised. Bernard Ramm is not afraid to face criticism, or he would not have published this book. Let all who share with him "the faith once for all delivered" pray that he will keep a cool head as he responds to the critical reactions.



# Review of Ramm, *The Christian View of Science and Scripture, on Biology*

RUSSELL L. MIXTER, Ph.D.  
Wheaton College, Wheaton, Illinois

## I. Toward A Philosophy of Biology

How true it is that a philosophy of biology is more fundamental an issue than evolution.

Ramm believes the idealist and Roman Catholic could accept evolution but a hyperorthodox would say it contradicts the Bible and makes him give up his belief in salvation. But the hyperorthodox equates "divine causation" with "sudden creation". The hyperorthodox might have his position disproved by a fossil find—he should have a philosophy of biology which would incorporate any fact found in the future.

Ramm accepts "progressive creationism which teaches that over the millions of years of geologic history God has been fiatly creating higher and higher forms of life", an inductive and empirical belief free of *a priori* assumptions. "... creation is the *realization* of certain forms or ideas".

## II. The Origin of Life

It would be well to compare recent work on the origin of Life such as Wald in the August 1954 SCIENTIFIC AMERICAN with the statements in this book. After showing the improbability of life's happening by chance, Ramm mentions that even if man could make a living thing he would be merely doing God's works over again, something chance might not be able to do. The origin of life by chance is a matter of faith and not a verified hypothesis.

Possibly it would be helpful if a little more stress in this section were put on the idea that whatever we do find out about the mechanisms we see, the more we should see a Machinist.

## III. Evolution

"There is without question an antichristian version of the theory of evolution" which has been used by the non-orthodox against Christian views. "... with this use of the theory of evolution, evangelical Christianity will always be at war". But other uses have been made of evolutionary theory, for example, the views of Aquinas that evolution is a method of God's working and the one that sees God stepping in at crucial points to produce advanced types. Even some Evangelical Christians have favored theistic evolution, such as James Orr and A. H. Strong, also some orthodox Catholic and Jewish theologians.

Evolution is neither wholly proved nor disproved, but "in terms of the philosophy of science is a *probability statement*" ... "and not anything like absolute or eternal truth". There is no *precise theory* to explain

it, but "evolutionists have a *profound* unbounded faith in the *vague* theory. This is not science at its best." Evolutionists should wait to see if their theory may be laid aside as was the case with Ptolemaic astronomy.

Genesis is a general sketch of God's work and allows for the finding of facts. Species may become other species but fiat creation is necessary for genuine upward advance, as is evident from the many gaps in the geological record. Both Genesis and biology begin with a void and climax with man.

Stinging the evolutionary theory by pointing out minor errors is no substitute for providing a more comprehensive theory. Author Ramm holds that his progressive creationism may be an advance in apologetic findings. Evolution is not the actual cause of anything, such as a carpenter is, but only the mediate cause, as are the wood and nails.

Some evolutionary authors disagree with Ramm, who insists that evolution can only mean "the constant increase of the complexity of forms over a period of time". Shull of University of Michigan holds that any change of whatever sort is evolution, even the change in the number of recessive genes over several generations.

Entropy is opposed to evolution, says Ramm. But you should remember that entropy means the world's processes are running down if they do not get outside energy. The sun is an outside source of energy, so the energy of the sun may prevent entropy from increasing in the organic sphere, hence evolution could occur because entropy does not apply to it.

At this point Ramm gives a good summary of the argument that the whole of nature is designed to be a field for life and this implies intelligent planning. Further he has an excellent section showing that man transcends his own physical nature, namely man's ability to think rationally, make more decisions, appreciate beauty, and know God.

Ramm concludes that evolution can never be the all embracing scheme of reality but only a possible secondary or mediate cause.

## IV. Theistic Evolution

"Is there a case for theistic evolution?" The author cites evangelicals who have both favored and opposed the acceptance of evolution into their thinking. Ramm feels that "If evolution is purely a secondary law, if it is derivative creation, then it has no profound metaphysical status, and can be tolerated in Christianity."

However "The writer is not a theistic evolutionist. He is a progressive creationist. . ."

May the reviewer comment that he is pleased with both the attitude and approach of *THE CHRISTIAN VIEW OF SCIENCE AND SCRIPTURE*. In the biology section there is careful use of fact and reserve in drawing conclusions. I am reminded of a statement of Dr. A. W. Tozer, a Chicago pastor, "I am a little too old to know all the answers." Evangelical reserve is as desirable as fundamental dogmatism.

#### V. The Virgin Birth

The book discounts the value of any illustrations from animals born without fathers because the virgin birth is a miracle. I feel that some students are helped by reciting cases of this sort for if an animal can be experimentally excited to produce a virgin birth, there could not even be a hint of a question that God would have the slightest difficulty. Biologists become believers in the regularity of nature; if they see that in

this respect nature is not universally regular, they can no longer justify their doubts about the virgin birth. An account of an animal analogy occurs in the *J.A.S.A.* Vol. II No. 1 in the article "Biology and Christian Fundamentals".

Ramm's thesis is that the Virgin Birth logically fits into the Christian scheme.

#### VI. Jonah

Besides reminding us that there are sea creatures big enough to swallow a man and that stories of men having Jonah's experience cannot be denied, the book presents Layard's view that the Ninevites may have worshipped a fish god, so "if Jonah appeared as having had this experience with the fish, he could have been received as a messenger of the gods". Repentance would logically follow so this explanation "adds to the rationale of the miracle of the fish in the book of Jonah".

## New Genes

JOHN C. SINCLAIR  
Los Angeles, California

The recent rapid development of biochemical genetics has given us a better appreciation of the nature of mutations. Along with this insight has come the realization that ordinary mutations are apparently not giving us anything new.<sup>1,2</sup>

It has been postulated that a new species could arise without new genes by changing the developmental pattern of rates of action and timing of gene action.<sup>3</sup> It seems possible, however, that timing and rates of action are also under the control of specific genes. Inversions and other chromosome rearrangements are factors in isolating populations from interbreeding, so that characteristic allelic differences become established in the separated groups. These differences can be great enough to justify classifying them as separate species; though the two groups still have essentially the same genes. The various modifications of the gene lead to many different alleles or forms. The response of these alleles to such things as suppressors, temperature, irradiation, and growing conditions, can be quite different.

Classical geneticists on getting new phenotypes from their mutants, often thought in terms of new genes as an explanation for them. The study of mutant effects in the bread mold, *Neurospora*, have shown that mutations apparently do not lead to new enzyme systems, but a modified or defective old one with no change in specificity.<sup>14</sup> The new phenotypes in *Drosophila* are probably also due to modified gene action or loss of genes, but not to new genes.

The realization that mutants are apparently not new genes leaves open the question of how new genes are formed. Several phenomena have been advanced as sources of new genes. Suppressors were once considered to be new genes.<sup>4,5</sup> A second mutation in a defective plant can sometimes enable the plant to grow. Such a second beneficial mutation is called a suppressor because it suppresses the defect of the original mutation. The suppressor of plants requiring pyrimidine for growth, it was thought, might act by taking over the function of the mutant gene. The growth of the plant containing the suppressor was affected by feeding arginine but the wild type and the pyrimidine mutant plants were not affected, so it was not likely that the suppressor was an activated duplicate of the pyrimidine gene.<sup>4</sup> Drs. Mitchell and Mitchell no longer make their earlier claim that the suppressor might act by taking over the function of the mutant gene. The pyrimidine suppressor acts on three mutants, pyrimidine 3a, proline 2 & 3, but inhibits seven others. The suppressor may introduce requirements of its own and usually causes a lag in growth so could be considered as a defect mutant. A loss of even one per cent in activity of the suppressor could reduce the concentration of a biochemical intermediate considerably, and yet not far enough to inhibit normal growth. This drop in concentration could account for the suppressor effect by altering competing enzyme equilibria.<sup>6</sup>

Suppressors are known to work in at least two ways.

The suppressor of acetate requiring mutants in *Neurospora*, probably opens up a latent secondary pathway of acetate production, similar to or the same pathway opened up by glycerol as a carbon source. The suppressor is not inhibited by glucose as is glycerol. The suppressor could be removing or reducing the concentration of the glucose metabolite which normally blocks the secondary pathway. Drs. Lein and Lein go on to postulate that many genes exist which do not have an essential function, but which may serve as a pool of genic material which on mutation makes survival more probable under certain conditions of selection.<sup>7</sup> However, the lag in growth response of the wild type plus acetate suppressor suggests that this gene which mutates to a suppressor is essential. *Drosophila* cannot sustain the loss of any of its genes without a severe mutant effect.<sup>8</sup> If *Neurospora* is at all similar, it is difficult to imagine where these many non-essential genes could be. Heterochromatin has been suggested as a source of new genic material.<sup>1</sup> It may be essential for nucleic acid metabolism in gene duplication—but does not answer the problem of how this non-specific material can mutate to specific genes, essential for the life of the organism.

The second way suppressors can work is by restoring the synthesis of the lost enzyme system.<sup>9</sup> If the destruction of the enzyme were inhibited it would appear the same as an increased synthesis.<sup>10</sup> Two allelic or closely linked tryptophane requiring mutants (C-83 & S-1952) are lacking in tryptophane desmolase activity as measured by an assay method capable of detecting one-four hundredth of the wild type enzyme activity. Various temperature, culture and assay conditions were used without eliciting activity. The suppressor will not suppress C-83, for C-83 plus suppressor is still lacking enzyme activity. S-1952 plus suppressor results in one twentieth wild type activity and is stimulated by adding tryptophane. The wild type plus suppressor gives one-third wild type activity and is *not* stimulated by adding tryptophane. The suppressor is therefore a defect mutant and has added a requirement of its own, unrelated to the need for

tryptophane. The S-1952 suppressor enzyme and wild type enzyme have a similar temperature stability, show a similar molar conversion of indole to tryptophane, a similar chemical inhibition, a similar pH maximum, Michaelis constant and energy of activation. The suppressor does not assume the lost gene function because it is ineffective in C-83, and is not an activated 'repeat' at another locus, for the same reason. Radioactive nitrogen studies eliminate the possibility of a secondary metabolic pathway. Nor does the suppressor relieve S-1952 from an inhibitor, because mixing wild-type with S-1952-suppressor does not affect its growth. The suppressor seems to act by providing an essential for enzyme synthesis rather than for enzyme activation.<sup>9</sup> This essential could be provided by inhibiting some system competing for it.

The eagerness with which suppressors were once claimed as new genes makes it evident how well it is realized that ordinary mutations are not giving us anything new. Dr. Mather says, "Experimental evidence suffices only to *hint* at what *may* be, not to tell what is. All other discussion of Evolution tacitly depends upon the origin of new genes." Ideas of mutations as small unit changes which can be compounded to give discrete orthogenic differences, are no longer valid, if these changes do not result in new genes.

Duplicate gene loci or "repeats" have been suggested as extra genic material from which new genes could arise.<sup>11</sup> This is true, but the changes which this material undergoes must be similar to changes at unduplicate gene loci, changes which have never been known to result in a new gene or changed specificity. It is claimed that pseudoalleles might be diverging repeats.<sup>12</sup> We have no evidence, however, that duplicate loci can diverge in this manner.<sup>13</sup> Dr. E. B. Lewis believes pseudoalleles may be separate genes controlling a series of closely related biochemical functions. Their similarity in function may be due to their control of intermediates they share in common.<sup>12</sup>

We have considered several phenomena that have been suggested as sources of new genes. In one way or another they are all inadequate, leaving us without a natural explanation for the origin of new genes. Is it not then permissible to consider that the original genes were created by God?

Christians have been criticized for limiting knowledge by ascribing the unknown to God. I am willing to seek natural causes insofar as possible, and I am keeping an open mind toward phenomena not now understood. Logically I object, however, to any attempt at explaining order or design by chance occurrences. Gene action is apparently dependent upon a fairly precise molecular form of the gene, a form which may be distorted by ionizing radiation or other similar agents. This distortion is like noise in an amplifier, in that it obscures the information carried by the gene. Noise itself is not informative, nor can

#### BIBLIOGRAPHY

1. Mather, K. *Soc. Exp. Biol. Sym.* 7, 66 ('53).
2. Bonner, D. M., *C.S.H.S. Quant. Biol.* 16, 143 ('51).
3. Goldschmidt, R. B., *Science* 119, 703 ('54).
4. Houlahan, M. B. and Mitchell, H. K., *Proc. Nat. Acad. Science* 33, 223 ('47).
5. Horowitz, N. H., *Adv. Gen.* III, 33 ('50).
6. Mitchell, M. B. and Mitchell, H. K., *Proc. Nat. Acad. Science* 38, 205 ('52).
7. Lein, J. & Lein, P., *Proc. Nat. Acad. Science* '38, 44 ('52).
8. Lewis, E. B., personal communication.
9. Yanofsky, C., *Proc. Nat. Acad. Science* 38, 215 ('52).
10. Mitchell, H. K., personal communication.
11. Hinton, T., Ives, P., Evans, A., *Evol.* 6, 19 ('52).
12. Lewis, E. B., *C.S.H.S. Quant. Biol.* 16, 159 ('51).
13. Goldschmidt, R. B., *Proc. Nat. Acad. Science* 36, 365 ('50).
14. Sinclair, J. C., *J.A.S.A.* 6-3, 2 (Sept. 1954).

mutations build information into a gene.

\* \* \*

It is with real pleasure that I acknowledge the sympathetic help of Dr. Bernard Phinney and Mrs. Lessie L. Rozier.

**Comment by Dr. T. Hinton, Department of  
Zoology, U.C.L.A.**

I think Mr. Sinclair overlooks the main point which is that if a new function should arise at unduplicated gene loci, the organism would die since the old gene has gone and there is nothing to carry on its function, therefore, one would not expect, a priori, to ever find them. If, on the other hand, the locus is repeated, one of the pair is now free to mutate to a new function while the other one continues to carry on the original function. This seems perfectly logical until proven otherwise and certainly does not make it fitting to relegate new genes to the supernatural. In my opinion, it is never fitting for a true scientist to deviate from the natural cause explanation. If some god can create new genes out of nothing at will, then there is no point in any of us seeking the basis of life. And as long as there is any doubt in Mr. Sinclair's mind then he certainly is in the wrong field. His reasoning is very similar to that of the communists who decided that since a supernatural force was indicated, genes could not exist—this is very dangerous reasoning.

**Comment by Donald S. Robertson**

First let me say that I think the subject of the article is one that is worthy of consideration and for the most part Mr. Sinclair handles it very well. The chief fault I find is in the technical way the material is presented. I fear this will make it difficult for the average Journal reader to assimilate. I think the article would be improved considerably by eliminating the second paragraph and by better defining such terms as "suppressor", "inhibitor", etc.

The following are a few minor points that bothered me:

1. I doubt the validity of the second sentence of the third paragraph. I think that geneticists more frequently think in terms of a new phenotype resulting from the loss of function or a modified function of an old gene rather than resulting from the production of new genes.

2. It seems to me that sentence four of the same

paragraph should include some phrase such as, "or loss of gene or gene function" after the words "reaction rates".

3. The second sentence of paragraph five does not make sense to me.

4. Is the eleventh sentence of paragraph seven true if C-83 and S-1952 are closely linked genes rather than alleles, a possibility suggested earlier in the paragraph?

5. The last sentence of paragraph ten makes an awfully big jump. I think something like, "Thus leaving us with the possibility that God is the source of new genes," would be better. I do not think the evidence compels one to turn to God if he does not have the inclination to do so. See Dr. Hinton's comments on this point.

**Comment by John C. Sinclair, Department of  
Surgery, U.C.L.A.**

Dr. Hinton's comments are based on *Drosophila* genetics. Comparatively little biochemical work has been done on *Drosophila*. If the mutant function can be "repaired" by adding the missing intermediate it can be kept alive and the defective system studied. With modern enzyme chemistry it should be possible to detect a change or drift in specificity of an enzyme which has been modified by the mutation of its corresponding gene.

Dr. Hinton may think I imagine God intervenes in nature in a capricious and unpredictable manner. I am convinced that nature is uniform, not because we have always found it so, but because God is trustworthy. The laws of nature are God's laws.

It is interesting to note that Dr. Hinton expresses the same conclusion that Dr. Mather expressed, that is, that we do not have any experimental evidence for the origin of new genes. This means that we do not have any experimental evidence for the theory of Evolution.

In answer to Dr. Robertson's question about the allelism of C-83 and S-1952, let me observe that, what the unit of heredity is, and how best to define it, is still being debated. The two tryptophane requiring mutants satisfy the physiological criteria for identity, but the cross-over criteria is based on whether or not anyone has ever observed crossing-over within the locus under question. Evidence of this sort can never be conclusive. However, C-83 and S-1952 are considered to be allelic by those working with them.



# Anthropology and Christian Attitudes About Culture

WILLIAM A. SMALLEY

(A review article on E. A. Nida's *Customs and Cultures: Anthropology for Christian Missions*, New York: Harper and Brothers, 1954).

Nida's *Customs and Cultures* is an important book for all Christians who are concerned with human behavior, whether it be on the level of theology, ethics, social science, evangelism, or simply normal interpersonal and interdenominational relations within and without the Christian community. The book is addressed to Christian missions in particular, but this apparently limited focus may be deceptive to the Christian whose interest in missions does not extend deeply into the principles and methodology of the "foreign" witness of the church. The book is important completely aside from its missionary slant. And lest my statements to that effect seem to be only the enthusiasm of another Christian interested in anthropology and its implications, it should be pointed out that the American Library Association selected it as one of the 50 outstanding religious books published during the twelve-month period for the year 1954-55.

The importance of *Customs and Cultures* stems from the relevance of anthropology to Christian thinking and from the fact that Nida has succeeded in demonstrating a segment of that relevance in a non-technical, rather popular style, yet with documentation (in the form of hundreds of fascinatingly-told illustrations) which is astounding in its volume, range, and scope. The "relevance" which Nida's book so well illustrates derives to a large degree from a viewpoint which is part of the framework of cultural anthropology. Anthropologists call it the "cross-cultural view." It is the understanding of human customary behavior in its actual setting, its local meaning, and its full range: its varieties over the earth, its differences through time, its distinctions among social strata.

Within the social sciences, for example, the "cross-cultural view" has caused, among anthropologists, skepticism of some theories of behavior developed by social scientists who deal primarily with peoples of Europe and North America and who therefore formulate theories on the basis of a relatively small segment of human culture. To a theory that adolescence must be accompanied by emotional stress, an anthropologist found an answer that in Samoa (and other places) it didn't. To a theory such as one that insecurity always develops if a baby is cared for indiscriminately by a wide variety of individuals, the anthropologist comes back: "But in many societies. . ."

The Christian's knowledge of the range of human custom is as limited by his own background as is that of anyone else. This colors his views and distorts them. He may believe that all medicine men are clever rascals who deceive the innocent, that all peoples have a sense of guilt for sin, that democracy is the best form of government for all people. The cross-cultural view reveals that many of his tacit assumptions simply are not true. It should give an enlarged sense of proportion in respect to behavior. How much of our "Christian way of life" is simply our culture—a product of our history—with nothing really "Christian" about it? The question has been argued endlessly. The data are anthropological. Nida does not spend much time discussing this problem in the abstract, but some of the force of his cross-cultural perspective may be seen in the following quotation:

"The Tarahumaras of northern Mexico give the appearance of being quite calloused at death. They have no ceremonial mourning, bury the dead in shallow graves, and may not even announce the death until some later gathering of friends for a community fiesta. The present-day Aztec women in some regions engage in wild mourning, with shrieks of hysterical wailing, while they throw dust into the air and over themselves. The funeral may take place in a local Roman Catholic chapel and if the family has enough money a band may be hired. One such band in Morelos used to play 'Yes We Have No Bananas' and 'Happy Days are Here Again,' tunes learned from listening to phonograph records. The Igorots of Luzon in the Philippines seat the corpse in the open space beneath the stilt house and watch while it bloats and putrefies. The Thai may place the body in a coffin and keep it in the home for as long as one hundred days. The coffin is specially constructed with a vent to let off the odors and a spigot to drain off the liquids. At last the bones, which have been scraped of their flesh, are burned. Some Africans in northern Congo seize the widow and drag her about the village in a twisting path, shrieking and howling as they go—all for the purpose of confusing the ghost of the husband who may be trying to follow his wife to kill her.

"Such practices may seem both crude and foolish, but they are not much more so than ours: huge tracts of hideous stones in the centers of some of our cities (where we ought to have playgrounds for children), fancy coffins (required even when the body is to be cremated), laws, which in some states require that an amputated leg or arm be formally buried, or the practice in some parts of the western world of adding plaster-of-paris arms and legs to bodies which have previously lost a limb. We may laugh at the San Blas for taking food to the graves of the departed, but this seems no more strange to them than our practice of carrying flowers to cemeteries. We are appalled at the wealth buried with Egyptian monarchs, and at the number of slaves who were killed to accompany their ruler to the next world; but the cost of a beautiful coffin to people in our society, one's best suit of clothes,

rings, a favorite tiepin, and flowers, plus perpetual care of a lot are proportionately as expensive and in ways almost as pagan, certainly for those whose much-avowed religious beliefs should contradict such practices." (pp. 166-7)

Some missionaries, to whom the book is primarily addressed, may feel that the greatest value for them in Nida's book is the discussion of various mission problems arising from human culture, and of various solutions which have been found to work in one part of the world or another. They may feel that the greatest practical value lies in the various conclusions of several of the chapters, where concrete suggestions are sometimes made.

Valuable as are these aspects of *Customs and Cultures*, it is still in the implications of the view of culture in its meaning and extent that this book can contribute the most to individual missionaries, and through them to missions. It is by helping individuals develop a new outlook, a new attitude, a new set of reactions. As Nida himself says toward the end of his book:

"The most successful anthropological and missionary methods of approach to non-Christian peoples have resulted not from theoretical formulations dreamed up in the isolation of one's study but from on-the-spot dealing with the complex, living situations. Anthropology may point out the nature of the problems and the possibilities of various solutions, but only the man at grips with the human factors involved can be expected to be successful in finding an adequate solution. The genuine sensitiveness to human needs has prepared many missionaries to be 'shockless' and objective in dealing with strange and personally abhorrent customs." (p. 262)

From the very first line the book aims at developing that "shocklessness"; "But we are not going to have our wives dress like prostitutes," protested an elder in the Ngbaka church in northern Congo, as he replied to the suggestion made by the missionary that the women should be made to wear blouses to cover their breasts." This first chapter is, in fact, named "Shocks and Surprises"; the emphasis on developing shocklessness through understanding continues steadily throughout the book. The following quotation is from the chapter on social culture:

"There is a tendency grossly to misjudge some aboriginal peoples for what appears to be vulgarity and lasciviousness in matters of sex. The typical Akha village in eastern Burma has the figures of a man and a woman at the gate to the village. Often these figures are placed in the position of coitus. This does not mean that the people are crudely obscene in their attitudes. They are not—except by our standards. As in the case of so many primitive peoples sex is regarded as one of the deeply religious mysteries, not to be covered up or disguised but to be recognized openly and to be revered in all its many manifestations. This, of course, is quite contrary to our puritanical tradition and is the source of much misunderstanding." (p. 129)

The understanding, the dispassionate view, the "shocklessness," the insight which *Customs and Cultures* tries to promote does not lessen in the least the place of the miracle of redemption through Jesus

Christ for all people in all cultures. "Some missionaries have been so 'conscious stricken' about past failures, have so dreaded any semblance of a superiority complex, and have so sincerely sought vital contacts with people, that they have not fully appreciated the revolutionary character of their ministry." (p. 254) Rather, it puts all culture in perspective, so that our own familiar ways of doing things, our vaunted "way of life" turns out to be no more and no less "pagan" than the equally cherished way of life of the Indian tribesman. Both are as filthy rags in the sight of God.

Nida has been preoccupied with the problems of anthropology and Christian missions for years. In his *Bible Translating*, printed in 1947 after having been developed in an earlier mimeographed edition, he said: "Almost every sentence of a translation will bear the mark of a translator's anthropological training. . ." In his function of Translations Secretary of the American Bible Society he has travelled particularly in Africa and Latin America, but in other areas of the world too, on trips ranging up to nine months or a year in duration, consulting closely with missionary translators on their stations. His skills as a linguist may have seemed the most obvious contribution he was making in many cases as he helped the missionary work out an adequate writing system for his language or helped analyze the tone system or worked out with the missionary the grammar of the verb system. But behind the mechanical details of linguistics he was also working for something else—for getting the meaning of the Scriptures across in sharp, idiomatic style, for making sure that the translation really *communicated* the message.

Sounds and grammar in any language are rather mechanical, but meaning is as varied as life. And the life of the African is vastly different from the life of either the American missionary or the life of Bible times. Communicating means getting the message, which was delivered to Bible cultures and which was transmitted by the missionary of Western culture, deeply into the understanding of peoples of African, Asian or Latin American cultures. Adequate communication, then, means the sympathetic understanding of all of these (remembering, too, that the Bible represents several cultures).

Of course many missionaries have such an awareness to varying degrees, whether they are formally educated in anthropology or not. This Nida recognizes, as in the quotation from page 262, above. In many, however, this awareness is very slight. Then both the Bible and the African (or his Asian or Latin American counterpart) are interpreted largely through the eyes of the modern Western world, or in terms of the particular religious sub-culture of it which the missionary represents. In Bible translating this lack of awareness is often reflected in literalism of translation so that in some cases the Biblical figure of beat-

ing the breast (which the people of Bible cultures understood as a sign of remorse and humility) is carried over literally to the African who understands by it boastfulness and pride. "Awareness" would have found that the African counterpart, in many areas, is to beat the head.

This type of thing Nida has documented at great length in *Bible Translating* and *God's Word in Man's Language*. It crops up again in *Customs and Cultures*, but the latter book goes on into the whole problem of missionary attitudes and understandings, whether they directly impinge on the translation of the Bible or not. Comparatively few missionaries translate the Bible, but all are faced with the problem of culture and of the barrier of their own attitudes, whether they realize it or not.

"Some missionaries make it a practice not to shake hands with 'natives' if there are any whites around, and they object seriously to having 'natives' in for tea or refreshments. The feeling is that the indigenous peoples will not know their place if they are given too many privileges. As one missionary expressed it, 'We once invited one young fellow in for tea, and from then on he thought he ran the mission.' The obvious mistake was that only one person was invited and that it happened only once." (p. 67)

Something of the organization of Nida's book may be seen from its chapter headings. "Shocks and Surprises" (i.e., peoples are all different in their customs and outlook), "Rhyme and Reason" (the customs of people serve a function and have meaning. Anthropology is the study of cultures), "Race and Ranting" (the true nature of race and race prejudice), "Hoes and Headaches" (material culture), "Friends and Frustrations" (social culture), "Devils and Doubts" (religious culture), "Drums and Drama" (aesthetic culture), "Queer Sounds, Strange Grammars, and Unexpected Meanings" (language), "Old Customs and New Ways" (culture change) "New Solutions to Old Problems."

It covers, then, most of the typical topics of a standard treatment of cultural anthropology, but it is not a text. It is rather the exposition of a viewpoint through discussion and illustration. Technical vocabu-

lary is kept at a minimum and, when introduced, is defined in non-technical fashion. The astonishing stock of stories about specific peoples and problems carries the message of the book. The anthropological theory underlying the book is extensive but does not obtrude itself. The reader, when he agrees with the author or is convinced by him, is likely to feel, "Why this is only common sense." The book runs, at points, counter to many of the basic assumptions of typical Americans, including typical missionaries; but these assumptions are treated in the effective way in which only someone with a cross-cultural viewpoint can treat them.

*Customs and Cultures* should be read without exception by every missionary and every would-be missionary. It should be one of the top requirements in the training of missionaries. It should also be read by all other Christian leaders and Christian leaders in training. If the non-missionary reader does not see its relevance to him and its implications for his outlook, perhaps he needs it most of all.

*Customs and Cultures* is absorbing reading. The reader may be annoyed at times by a slight repetitiveness, but even that probably has its pedagogical value. It will open up entirely new trends of thought for many. It will entertain as it enlightens. It will be successful in the measure that it helps us see others as they see themselves and helps us see ourselves as others see us. Nida closes with these words: "However, what is even more important than revised programs and new strategies is an all-embracing consciousness of the reality of God and our own cultural inadequacy. The power of Jesus Christ working through His consecrated and teachable servants can sanctify all of life to the glory of God." It is in teaching those "teachable servants" about our "cultural inadequacy" and about the way in which God does sanctify for His glory cultural forms which seem barbarous and ludicrous to our limited cultural viewpoint that this book makes so great a contribution.

August 24, 1955

# Entropy in Relation to Genetics

WILLIAM J. TINKLE

Albany, Indiana

Thermodynamics, the mechanical theory of heat, dates from Sadi Carnot, 1824. It deals with the trend in the manifestation of energy when heat flows from one body to another, or is transformed to another form of energy.

The first law of thermodynamics usually is stated as a special wording of the law of conservation of energy, as follows: When energy is transformed, equal units of another form of energy appear. This principle, implying that energy at present is neither created nor destroyed, has of course been recognized a long time; and in recent years, atomic investigation has added the principle that matter may be changed into energy and vice versa.

The second law of thermodynamics is not easily stated in few words, but in its simplest form it carries the idea that heat tends to pass from a hotter body to a colder one, as water flows down hill. Clausius in 1850 stated the law in these words: "It is impossible for a self-acting machine to convey heat from one body to another at a higher temperature." Lord Kelvin in 1851 used more exact and practical language as follows: "It is impossible by means of any continuous inanimate agency to derive mechanical work from any portion of matter by cooling it below the lowest temperatures of its surroundings."

To use a familiar example, it is when heat is flowing from the fire box to the flues in a steam engine that this machine can perform work. The heat changes the water around the flues into steam, which moves the piston and turns the wheels. If the temperature of the fire box were less than the temperature of the flues, heat would not flow to the flues and no work would be done.

Heat leaves the engine by radiation or convection into the atmosphere, or else is changed into friction in the bearings and belts of the machinery. In obedience to the first law of thermodynamics, this heat is not destroyed; while in obedience to the second law, it enters a body of such a low temperature that it can not flow into any cooler body, and thus no longer can do any work. So far as man is concerned the heat has been lost, through its degradation.

Entropy is a measure of this degradation of heat or other energy. Since heat always flows from a higher to a lower temperature, a body that gains heat always gains more entropy than is lost by the body losing the heat; hence, with every flow of heat the total entropy

of a system of bodies rises, and thus tends toward a maximum.

Thus the second law of thermodynamics describes a world which is running down, as illustrated by its available energy. Psalms 102: 25-27 is in broad agreement, for it describes a world which wears out:

"Of old thou didst lay the foundation of the earth, and the heavens are the work of thy hands.

They will perish, but thou dost endure;

they will all wear out like a garment.

Thou changest them like raiment, and they pass away: but thou art the same, and thy years have no end."

Isaiah 50:9; 51:6; and Hebrews 1:10, 11 state the same principle.

In opposition to all that has been stated above, General Smuts made the claim that the trend of the universe is upward. "The evolution of the material universe, and of life on this globe seems to be, in part at least, a negation of the second law of thermodynamics, the law of the dissipation of energy."<sup>1</sup> Similarly, the present writer remembers a claim which was made in a class in the Ohio State University that living things are an exception to this law.

The late T. H. Morgan does not wholly agree with General Smuts. He writes that when a plant leaf makes starch from carbon dioxide and water in the presence of chlorophyll, it can be shown that the sunlight used was a greater amount of energy than the chemical energy stored in the starch which was made.<sup>2</sup> While I do not know that such a test has been made, Morgan doubtless is correct. Plant and animal metabolism regularly follows the laws of chemistry and physics, including the second law of thermodynamics.

If, then, the physiological processes are not unique but involve the accumulation of entropy just as engines do, the supposed evolution of living things is claimed to be very unique. It is placed in a corner, in a class by itself.

The question under discussion is this: Is there a broad agreement between the organic realm and the principle of accumulation of entropy? Is the world of living things building up or running down? Answers might be received from different branches of science, but in this paper genetics is employed because it deals with heritable changes.

As originally postulated, the theory of organic evolution contained the idea that plants and animals have been built up gradually from simple to complex forms. In recent years, men such as Simpson, Goldschmidt, and Dobzhansky recognize that many observed changes result in greater simplicity and less adaptation,<sup>3</sup> yet they include these changes in evolution.

<sup>1</sup>Presented at the Ninth Annual Convention of the American Scientific Affiliation, Harrisonburg, Virginia.



Their frankness is to be admired, but these men are weakening their theory. For the idea of progress is an essential part of the doctrine of evolution and in the nature of the case it must be so, if one says that the present complex, symmetrical, well adapted living things started as simple slime in the sea.

Then if evolution be proved, the organic world does contradict the second law of thermodynamics. But what do the careful and oft-repeated tests of genetics contribute as to the direction of the changes?

Genetics deals with changes which result in types of animal or plant life that reappear generation after generation, a process such as growth, which affects but one generation at a time, without cumulative effect, does not affect the upward or downward tendency of living things. This subject was discussed in my paper, "The Principle of Growth as an Obsession", which was read at the 1953 Convention.

Pure lines of plants, which are developed by man's selection rather than appearing in nature, are significant indicators of the natural trend. Johannsen's work<sup>4</sup> with the Princess bean was discussed by the present author in "Modern Science and Christian Faith", second ed. p. 72f. Johannsen's method of starting a pure line was the saving of the progeny of a single bean seed. Since bean flowers naturally are self pollinated, this group or pure line of bean plants had identical ancestry. The genes of one plant were just like the genes of any other member of the pure line, and any difference between the plants was caused by their environment. Their likeness was proved by the fact that selection within a pure line was not effective, but small beans when planted produced the same size of seed as large beans, on the average.

Pure lines have been developed in other species of plants, with the same results. In a species which normally is cross pollinated, such as corn, *Zea mays*, the process takes longer but after six generations of inbreeding, strains of corn are developed which are nearly pure lines. In a pure line of any kind of plant there is so much homogeneity that selection makes no difference in the progeny. For instance, C. D. LaRue selected within a pure line of *Pestalozzia gnipini*, a kind of fungus.<sup>5</sup> For ten generations he planted the longest spores, but the plants of the tenth generation bore spores of the same length as the plants of the first generation. He selected for length of spore appendages during twenty-five generations, but found this selection equally ineffective.

Such stability in pure lines would not be observed if genes changed gradually, either for the better or for the worse. Genetics has demonstrated, however, that genes in all plants and animals have this stability. Pure lines are chosen as an illustration because of their simplicity; in them, extraneous factors do not confuse the picture. When a gene changes at all it suddenly mutates. Such changes do occur, although rarely, and will be discussed below.

Sometimes we hear farmers or gardeners say that a certain variety or strain "runs out". In many cases this is due to disease, and is most likely to occur in plants which are propagated by vegetative methods, such as cuttings, sprouts or bulbs. In such propagation the material connection between generations is larger than seeds or spores, with the result that bacteria or hyphae of disease are carried readily.

A new combination of characters such as usually follows a cross of two strains is a genetic change. Yet it does not involve a change in a gene nor even in the number of genes, but brings genes together which formerly were in different plants or animals. In many instances a cross results in heterosis or hybrid vigor. But since this added vigor lasts but one generation, it has but little bearing on our subject.

The discussion so far in this paper reveals a horizontal tendency in animate nature. It is true that the bodies of old animals and plants wear out but in the next generation the material and vigor of the new organism are built up to the former standard, on the average.

But we must not overlook the exceptional occurrences, the heritable changes. In addition to the sudden change or reorganization of a gene called a mutation, there are changes which do not involve change in individual genes, but differences in their number or arrangements. Since a chromosome may be regarded as a row of genes, an unusual number of chromosomes results in an abnormal number of genes, and this makes changes in the characters of the plant. These exceptional forms have been observed in the primrose, *Oenothera*, the jimson weed, *Datura*, and the tomato, *Lycopersicum*. A plant having half the normal number of chromosomes, called a haploid, has greatly reduced vigor but with special care may live. If a haploid plant produces seeds (which it hardly would do in nature) these seeds become normal diploid plants and the haploid type ceases to be.

A few triploid plants have been observed to make their appearance, a type having three times as many chromosomes as the haploid or one and one half times as many as the normal diploid. It also has reduced vigor, and if it produces offspring they are not of its type.

Plants having an extra chromosome, the trisomic or  $2n + 1$  type, have less vigor than normal diploids. As for the  $2n - 1$  type, A. F. Blakeslee wrote the author that in his work with *Datura* at Cold Spring Harbor he observed only one such plant and was not sure of it. To produce such a plant, one gamete would have no chromosome of one of the pairs; but it seems that such a gamete could not live.

A number of tetraploids, plants having twice the normal number of chromosomes, have been observed, and superficially they represent an improved type. Such a plant has a stocky appearance because of the thick stems and leaves but the height is no greater than

the diploids and it bears fewer seeds. While it usually reproduces its type, it tends to die out in nature if competition with the normal type is keen.

A typical group of tetraploids are the ones produced in muskmelon, *Cucumis melo*, by Batra, using 0.4 per cent of colchicine, which he applied upon the seedlings in the cotyledon stage.<sup>6</sup> The tetraploids formed thus had larger leaves, flowers, stomata, pollen, and stem diameters than the diploid plants. But the fruits were smaller, the entire plants only half as large, and, characteristically they bore only 24.3 per cent as many plump, viable seeds. While the taste of the tetraploids is preferred, the plants are inferior from the standpoint of getting along in nature.

It is commonly mentioned that tetraploids and other polyploids are found in nature. For instance, the three common species of wheat have 7 pairs, 14 pairs, and 21 pairs of chromosomes, respectively. In chrysanthemums the numbers range from 9 pairs through 18, 27, 36, and 45 pairs in different species. But since we do not know how these types arose we can not state whether the changes—if such occurred—resulted in improvement or detriment. The changes in chromosome number which have been observed to occur have not been beneficial to the plants.

Concerning gene mutation and the resultant mutant types which are formed, there has been much discussion. Geneticists are agreed that the majority of mutant types are inferior to their normal ancestors from the standpoint of getting along in the world. Of course some mutant strains are prized by man, for instance seedless oranges, stringless beans, and hornless cattle. At the Connecticut Agriculture Experiment Station a mutant tobacco plant<sup>7</sup> appeared which grew so tall that it produced twice the normal number of leaves. But since this added growth was accomplished by a postponement of seed bearing, the lack of seeds was more of a loss to the plant itself than the added leaves were of gain. While it may be that some mutations confer neither an advantage nor a disadvantage, they characteristically reduce the vigor and often subtract some character.

There is no space in this paper to give a list of harmful mutations nor even to give a critical evaluation of the few which have been claimed to be beneficial. The best that can be done is to discuss the nature of such changes.

H. J. Muller, who won the Nobel prize for his work on mutations, at Washington was cornered by a group of newspaper men who asked him to discuss the outlook of improving the human race. He answered, "Most mutations are bad. In fact, good ones are so rare that we can consider them all as bad."<sup>8</sup>

Now it might be said that beneficial mutations are being overlooked; that it is not enough to say that we have not found them. But Austin Clark of the U. S.

"... a subtraction of something. Those differing from the normal says they naturally are defective; widely from the normal can not develop past the embryo."<sup>9</sup> Dobzhansky also states that mutations which differ most from the normal are the least viable.<sup>10</sup> It should be apparent that if the biggest changes are the worst, it must be that mutation is naturally a deleterious process, and we are not simply overlooking the good ones. That is, the general tendency of mutation is unfavorable, and a plant or animal is better off if none occurs. Julian Huxley also agrees, stating that the larger the change the less likely it is to be an improvement.

### Conclusions

Observation of the working of heredity in plants and animals shows that there is broad agreement between the organic realm and the second law of thermodynamics. There is not strict agreement, for while the loss of energy in a mechanical system is gradual and continuous, just as a garment wears out, the loss of vigor in a living strain is noted only when a genetic change occurs. An animal such as the brachiopod, *Lingula*, which has not manifested any change since the Silurian Period probably never has suffered any loss of vigor.

The improvement of plants and animals by man agrees with thermodynamic laws. This improvement has its counterpart in the refrigerator, which is cooled by forcing heat out of it by means of an electric motor. If left to itself, heat would flow into the refrigerator from the surrounding warm air. In like manner, the improved breeds and varieties developed by man lose their identity if left to reproduce in wild areas.

The facts cited above indicate that creation was a unique process, building up a universe which has been running down since that divine event. The Bible, the laws of physics, and the laws of genetics agree that the universe is running down, except as conscious human effort or divine intervention reverse the decline. The organic realm is not an exception.

### LITERATURE CITED

1. Quoted in T. H. Morgan, *Sci. Basis of Evolution*, p. 248, Norton, 1932.
2. *Ibid.*
3. T. Dobzhansky, *Genetics and the Origin of Species*, Columbia Un. Press, 1941. A number of other writings.
4. W. Johannsen, *Elements der Exakten Erblchkeitslehre*, Jena, 1926.
5. C. D. LaRue, *Genetics*, Vol. 7, 1922, pp. 142-183.
6. Shanti Batra, Induced Tetraploidy in Muskmelons, *J. of Heredity*, Vol. 43, pp. 141-148, May-June, 1952.
7. E. B. Babcock & R. E. Clausen, *Genetics in Rel. to Agr.*, fig. 150, McGraw-Hill, 1918.
8. *Time Magazine*, Nov. 11, 1946, p. 96.
9. A. Clark, *The New Evolution, Zoogenesis*, p. 218, Baltimore, Williams & Wilkins, 1930.
10. T. Dobzhansky, *Genetics and the Origin of Species*, p. 53, Columbia Un. Press, 1941.

# Can Christians Learn Anything from AA?

NORVELL L. PETERSON, M.D.

Lieutenant Commander, Medical Corps, U.S.N.R.

Staff Psychiatrist, Balldale, Inc., Georgetown, Massachusetts

Professor of Practical Theology, Gordon Divinity School, Beverly Farms, Massachusetts

Today much is said and written about AA (Alcoholics Anonymous) from the economic and social standpoint, the best social answer to the problem of alcoholism.

Among the many favorable comments lauding the achievements of Alcoholic Anonymous, we occasionally see articles attacking it, especially in evangelical Christian publications.

Let us examine the Alcoholics Anonymous program, its dynamics and achievements and see if in attacking it we are not being unrealistic, negativistic, and violating the scriptural admonition to be "established in every good work."<sup>1</sup>

It may be that we shall learn something from Alcoholics Anonymous, something we can use in our daily lives for a more effective Christian life to the glory of God.

## What AA Is Not

First, let us be factual—let us understand what AA is not.

AA is not a religion, though many of its members may try to make it that, just as many church members make a religion of their particular church.

AA is not a social organization, though it serves a similar purpose as a part of its mission.

AA is not a cure-all, nor is it an easy way to solve alcoholism or the alcoholic's problems.

AA is not and does not pretend to be Biblical Christianity or an imitation. Neither is it Christian philosophy, though many of its principles (dynamics) could be used to the glory of God in any church.

AA, or its so-called doctrines, philosophy or practices, is not an imitation or substitute for the Gospel of Jesus Christ. It could be looked upon as providing a social program. In practice, at least, it is a social and not a spiritual program. It does not therefore fall into a category to which a "Scripture Test" could be applied, nor is it another gospel.

AA is not something "vicious . . . diverting the person from the Source of light and life and true adjustment", but rather the way by which many an alcoholic may stay sober long enough to find his way to the church and Jesus Christ as Savior and Lord of his whole life. (Let's not take away the little that the alcoholic has.)

AA is not a belief "that man is essentially good", otherwise "step one"<sup>2</sup> would not say, ". . . admitted

we were powerless over alcohol . . . that our lives had become unmanageable", or "step two",<sup>2</sup> ". . . believe that a Power greater than ourselves could restore us to sanity."

AA is not an organization or philosophy that absolves the alcoholic of moral responsibility or divorces alcoholism and morality. This is plainly indicated in "step four"<sup>2</sup>: ". . . made a searching and fearless moral inventory of ourselves", and "step five"<sup>2</sup>; "admitted to God . . . the exact nature of our wrongs".

Finally, AA is not, in the social sense, a failure. People fail, AA gives them hope or shows them up.

## What AA Is

A Christian layman, not exactly an AA enthusiast, has written:

"The 12 steps and the 12 traditions of AA which set forth respectively the individual creed for recovery and the group constitution for government, contain much good sense and truth when measured by the humanistic and psychological point of view."<sup>3</sup>

The international monthly journal of the Alcoholics Anonymous, *The AA Grapevine*, carries this declaration on the inside back cover of every issue:

Alcoholics Anonymous is a fellowship of men and women who share their experience, strength and hope with each other that they may solve their common problem and help others to recover from alcoholism.

The only requirement for membership is an honest desire to stop drinking. AA has no dues or fees. It is not allied with any sect, denomination, politics, organization or institution; does not wish to engage in any controversy, neither endorses nor opposes any causes. Our primary purpose is to stay sober and help other alcoholics to achieve sobriety.

Marty Mann, present head of The National Committee on Alcoholism, has written an excellent little book which I heartily recommend to anyone wishing to know more about alcoholism. To give a better understanding of what AA is and how it works, the following is quoted from the chapter on AA of this now sober woman's book, "The Primer On Alcoholism."

In the first place, AA has a single purpose from which it will not be diverted, and to which all efforts of AA members are directed. In the words

<sup>1</sup>Presented at the Ninth Annual Convention of the American Scientific Affiliation, Harrisonburg, Virginia, August, 1954.

of those members, AA is a loosely knit, voluntary fellowship of alcoholics (and of alcoholics only) gathered together for the sole purpose of helping themselves and each other to get sober and to stay sober. It is not affiliated or connected in any way with any other group, organization, society or movement. It is not, for instance, allied to (or fighting) the W. C. T. U. or any other "Temperance" group. It has no ties, open, hidden or otherwise, with the liquor business. In other words, it stays completely clear of the age-old Wet-Dry controversy.<sup>4</sup>

AA, as such, espouses no causes, even causes designed to help alcoholics. It does not sponsor or support hospitals, nursing homes, or sanitariums for alcoholics. It takes no part in any controversial matter. It is not connected or involved with any sect, denomination or creed. It takes no position on any public matter. As a matter of fact, it takes no position, as an entity, even on internal matters, although it has, over the 15 years of its existence, evolved a few traditions which have been set down in words, and to which most AA members adhere. It has only one condition which leaves open doors as wide as the world . . . to alcoholics. It is taken for granted that this condition refers to ALCOHOLIC DRINKING ONLY. AA does not accept non-alcoholic drinkers as members.<sup>5</sup>

This one condition, however, explains the reasons behind such complaints as are made about AA. AA members do not go out into the highways and byways (or into bars) proselytizing for new members. They wait until the alcoholic himself asks for their help, but if and when he asks, it is given unstintingly, even though he may have a difficult period of indeterminate length during which he "slips around" or "bounces"—in other words, repeatedly relapses into his old drinking pattern. During such a period with an alcoholic who has sincerely asked for help, AA members willingly perform all the functions so often asked of them in vain on behalf of an unwilling alcoholic: playing detective, doctor, nurse, policeman, and constant companion; giving understanding and sympathetic help at all hours of the day or night; helping out with family problems, sometimes even taking the alcoholic in to live with them.<sup>6</sup>

But AA is much more than just an answer to the alcoholic's drinking problem—it is a plan for achievement that you and I can use to advantage as Christians. I continue to quote from Mrs. Mann's chapter on AA.

. . . Later he will find that the "twenty-four hour plan" has many more uses for him than just helping him to stay away from a drink; he will begin to apply it to many of his life prob-

lems, with growing effectiveness, and shrinking worry (with its resultant nervous tension).<sup>7</sup>

Those who have anything to do with church group meetings will find something of value in an AA meeting which she describes as follows:

The audience does not participate in an "open" meeting; there is a leader and three or four speakers, each of whom identifies himself (or herself) as an alcoholic, both by stating the fact and by telling some of his drinking experiences. This is done for the specific purpose of letting any "prospects" in the audience know, beyond the shadow of a doubt, that they are listening to people who know firsthand what they are talking about; and to convince those same newcomers that here are no high-flown "preachers" talking down to them and offering them "salvation" from a mountain-top of personal invulnerability. Each speaker hopes that he will personify hope to some alcoholic whose past experiences may have been similar to his own. Usually the speakers recount the steps by which they falteringly reached the haven of AA, and talk of what that haven has meant to them, how they have used the techniques and principles of AA, and what their resultant sobriety has done for them and their families. At the end of such a meeting, coffee and refreshments are usually served, and it is then that the newcomer meets and chats with many AA members. Some of them will exchange telephone numbers with him, and urge him to call them if he feels he needs support at any moment. Often they will make dates for luncheon or dinner, or to have coffee together at the dangerous cocktail hour. All of them will suggest that he go to as many meetings as possible, at least for a while, although later one a week may be sufficient. He will learn that he is not expected to speak at a meeting for a long while to come, and then only if he is willing; in many AA groups no one is allowed to speak at a meeting until he has had three months' sobriety. But most of all he will learn of the warm friendliness that exists among these alcoholics; he will feel not only welcome, but often as if he had come home at last to his own people. He is taken on face value here. No one asks his age, occupation, financial position or background—they rarely even ask his last name, for first names are the rule, at once. No one looks down on him from a height of long sobriety, for there is a saying in AA that all members are only one drink away from a drunk, and another saying that it is the quality and not the quantity of sobriety that counts. The newcomer's few hours of sobriety have as much value in the members' eyes as their own months or years, providing that he is serious about making it permanent. It is often said



that a newcomer is the most important person at an AA meeting: Because of his great need, and also because of their need of him, both to learn more of AA principles by teaching them to him, and as a link in the endless chain they are forging to pull themselves and other alcoholics out of the abyss of alcoholism.<sup>8</sup>

The importance of the spiritual is often more apparently important to AA than to many churches. Speaking of the "12 Steps" and commenting on the tenth, Marty Mann writes:

The spiritual basis of AA actually permeates all of the foregoing steps, even for the alcoholic who doesn't think he has accepted it. For the changes in attitude which are implicit in all the above are of a spiritual nature, as well as being mental and emotional. The alcoholic who has found faith in his sponsor, and then in his group, has already become dependent on a power greater than himself, even if it has not yet got a capital P. As time goes on his faith will extend to a new faith in humanity, and from this it is not usually very far to a faith in the Creator of that humanity. Many AA's have learned at first-hand of the miraculous power of prayer; many have found great inner peace and happiness in a full return to their church; many others have embraced a formal faith for the first time; some have found their own private faith which sustains them well. All save a very few give full credit to spiritual help in overcoming their alcoholic obsession.<sup>9</sup>

From experience I know, as you do, scores of men and women who have been able to achieve sobriety with the help of AA. We would know of many more if we knew the life history of the friends in our community—friends we'd never suspect thank AA for their present social and economic status.

To summarize briefly, AA, now in its 20th year, was started when a New York broker, Bill W., an alcoholic and now a Christian, too, was in Akron, Ohio, on a collapsed business venture. Scared to death of getting drunk and knowing that he needed another alcoholic as much as that one could possibly need him, he sought out Dr. Bob.<sup>10</sup> By pooling their experiences, their spiritual, moral and intellectual resources, AA was started.

In the one short year 1953 after Sister Ignatia went to Cleveland's famed St. Vincent's Charity Hospital, 1000 alcoholics saw the light of their new day in the remodeled alcoholic ward. Sister Ignatia, who has kept in touch with many of them, believes that 700 are sober at this moment.<sup>11</sup>

#### **Membership Now Over 1/8 Million**

AA now reports a membership in excess of 125,000. More than 1/2 of this number are believed to be quite successful in sobriety, yet a much smaller per cent

would still make AA a social project well worth the support of anyone really interested in his neighbor—his fellow man.

What AA is well summarized in the following quotation from a Jesuit of Brooklyn, N. Y.

"Analyze it as you like. Question it. Scoff at it. Say, 'It is impossible.' The simple fact is that it works and it does the job as no one else, no other agency, has been able to do."

"The reason? One. The candidate for AA must throw himself into the arms of God, as he understands God. Two. He makes it a day-to-day struggle to stay in God's grace and Presence. Three. He aims to make any sacrifice to share his new-found blessing with another alcoholic in need of help.

"The social and spiritual security of every single member is bound up in the welfare of all. This is social action with a capital S.

"AA is not a religion. It is the basis of a new way of life. It insists upon and stresses the absolute need of spiritual principles in life. It encourages each member to follow his own Faith or to find a Faith if he has none. It neither commends nor condemns any man's religious beliefs. Controversy is completely and entirely outside its field and scope.

"AA has one specific purpose—to provide the means of a happy sobriety for its members. It is not a substitute for the specific Faith that a man possesses."<sup>12</sup>

The idea of using a disease or illness as a means of illustrating a spiritual problem, as a symbol in an equation to find an unknown or to bring into consciousness a painful concept, is not new. The Holy Spirit in the Old Testament so used leprosy—a disease which most of us now know only from books as hearsay. Now let us use the problem of alcoholism, common to all of us today, as a means of reformulating some new ideas of everyday practical Christian living. Indeed, alcoholism is the leprosy of our day.

#### **The 12 Steps<sup>13</sup>**

Let us turn at once to the "12 Steps of the AA program."

Step One: We admitted we were powerless over alcohol (sin<sup>14</sup>) . . . that our lives had become unmanageable.

Step Two: Came to believe that a Power<sup>15</sup> greater than ourselves could restore us to sanity.

Step Three: Made a decision to turn our will and our lives over to the care of God as we understand him.<sup>16</sup>

Step Four: Made a searching and fearless moral inventory of ourselves.

Step Five: Admitted to God, to ourselves and to another human being the exact nature of our wrongs.

Step Six: Were entirely ready to have God re-

move all these defects of character.

Step Seven: Humbly ask Him to remove our shortcomings.

Step Eight: Made a list of all persons we had harmed and became willing to make amends to them all.

Step Nine: Made direct amends to such people whenever possible, except when to do so would injure them or others.

Step Ten: Continued to take personal inventory and when we were wrong, promptly admitted it.

Step Eleven: Sought through prayer and meditation to improve our conscience contact with God as we understand him,<sup>16</sup> praying only for knowledge of his will for us and the power to carry that out.

Step Twelve: Having had a spiritual awakening as the result of these Steps, we tried to carry this message of alcoholics (sinners)<sup>14</sup> and to practice these principles in all our affairs.

I submit these "12 Steps" to all of us Christians for soul-searching, study, analysis and application—12 wonderful steps toward a fuller, more effective, more satisfying Christian life and witness—in the true evangelical, spiritual sense, not just a way of social living or of handling alcohol.

### The 12 Traditions

Now for the Church of Jesus Christ that wants to be a real witness in a spiritual, evangelical sense, I submit "The 12 Traditions"<sup>17</sup>, with the slight indicated adaptations:

One: Our common welfare should come first; personal recovery depends upon *church*<sup>18</sup> unity.

Two: For our group purpose there is but one ultimate authority . . . a loving God as he may express himself in our group conscience. Our leaders are but trusted servants . . . they do not govern.<sup>19</sup>

Three: The only requirement for *Church*<sup>18</sup> membership is a desire to stop *sinning*.<sup>20</sup>

Four: Each group should be autonomous, except in matters affecting other groups or the *Church*<sup>18</sup> as a whole.

Five: Each group has but one primary purpose . . . to carry its message to the *sinner*<sup>21</sup> who still suffers.

Six: A *Church*<sup>18</sup> group ought never endorse, finance or lend the *Church*<sup>18</sup> name to any related facility or outside enterprise lest problems of money, property, and prestige divert us from our primary spiritual aim.

Seven: Every *Church*<sup>18</sup> group ought to be fully self-supporting, declining outside contributions.

Eight: The *Church*<sup>18</sup> should remain forever non-professional, but our service centers may employ special workers.

Nine: The *Church*<sup>18</sup>, as such, ought never be organized; but we may create service boards or committees directly responsible to those they serve.

Ten: The *Church*<sup>22</sup> has no opinion on outside

issues; hence the *Church*<sup>18</sup> name ought never be drawn into public controversy.

Eleven: Our public relations policy is based on attraction rather than promotion; we need always maintain personal anonymity at the level of press, radio, and films.

Twelve: Anonymity is the spiritual foundation of all our Traditions, ever reminding us to place principles above personalities.

I leave with you "The 12 Traditions" as something to think about in terms of cooperative spiritual living.

I know that some Christians will want to criticize this effort to introduce a formulation of practical psychodynamics into our daily walk as Christians and servants of the Lord Jesus Christ. I know, too, that all of us will find it hard to accept these definite, practical ways of increasing our spirituality (converting psychodynamics into pneumodynamics).

### Resistance to Introduction of Knowledge

Why is it so hard to accept these principles when they seem so obvious? There are several reasons:

First, because it is *humbling* to take these steps and make these admissions to God, to ourselves, and to others.

Second, because at first our *resistance* naturally blinds our own eyes to these hidden principles, as it does in the writings of James, Paul, Peter and John.

Third, because they *do not come out of the Church*, but from what appears to be a secular, non-Christian organization.<sup>23</sup>

Fourth, *because anything new or that appears new* instantly generates resistance. It is the old difficulty of changing direction.<sup>24</sup>

Fifth, because we want to reject anything relating to alcohol, as not important, so *that we may feel superior* to alcoholics. This is a means of justifying our self-righteousness, concealing a blind spot.<sup>25</sup>

What is the place of AA in the thinking of Christians? Let us consider these possibilities.

### The Christian's Attitude Toward AA

AA is a step in the right direction. The alcoholic may not be ready for the Church, but bitter and fighting Christ and Christianity. For such, AA is an opening wedge for a spiritual program and a valuable ally of the Church, not another denomination.

We can ease our fears of competition by remembering what Christ told John: "He that is not against us is for us."<sup>26</sup>

The moral problem is the same with the alcoholic as with the non-problem drinker, but the effects are different.

AA was started by Christians to help people the church is not reaching, socially or spiritually! It is doing that—perhaps first on a social level—but many are helped in a spiritual way, too. (Should Christians want to take away the little that these alcoholics have because they are threatened by the fancied competi-

tion?)

Finally, AA started by Christians, is spiritually and psychologically correct, and forms an opening wedge for surrender to and acceptance of deeper spiritual meanings.

### Conclusion

The purpose of this paper has not been to make a brief for AA, but to find what it is that AA members are using so successfully to live on a higher spiritual plane, which, used by Christians, will help them live a better and more effective spiritual life.

Since these principles work for the alcoholic, they may work for all of us, for you and me! Should the alcoholic have the exclusive use of psychodynamic concepts that work?

Finally, the only difference between you and me and any alcoholic is that Jesus Christ is our Savior and the Holy Spirit is our *Parakletos*, "one called alongside to help"<sup>27</sup>—the psychological essence of the AA program.

So let us not take away the little that the alcoholic has. If we find it hard to accept AA ideas, just remember: "There but for the grace of God. . ."

### Summary

It has been the purpose of this paper:

1. to clear up some of the confusion that seems to exist among evangelical Christians as to what Alcoholics Anonymous is not and what it is—a means to "a happy sobriety for its members";
2. to establish an understanding of the dynamics responsible for the success of the Alcoholics Anonymous program—stressing "the absolute need of spiritual principles in life";
3. to provide principles and facts upon which evangelical Christians may develop attitudes and approaches toward certain social problems—not taking away the little that a man has, but using it to lead him into deeper spiritual truths which bring him face to face with Jesus Christ as Savior and Lord;
4. to enable Christians who desire to be an effective daily witness for Jesus Christ to understand the forces utilized in AA, and to find that which they may use in their own every-day experiences in living a surrendered, successful, spiritual life

### BIBLIOGRAPHY

- Bloom, Herbert I., Rabbi, "A Rabbi Speaks", *The AA Grapevine*, Vol. 10, No. 10, May, 1954.
- Ellison, Jerome, "The Drug Addicts Who Cure One Another", *The Saturday Evening Post*, August 7, 1954, p. 22.
- Shoemaker, Sam H., "The Twelve Steps of AA", *The Evangel*, 61 Gramercy Park, New York City.
- Smith, Rev. William J., SJ, "A Jesuit Applauds AA", *The AA Grapevine*, Vol. 10, No. 9, Feb., 1954, p. 17.
- Taylor, Dr. G. Aiken, "God and AA", *The AA Grapevine*, Vol. 10, No. 6, Nov., 1953, p. 3. (Dr. Taylor, who is pastor of the Northside Presbyterian Church, Burlington, N. C., has also written a book on AA).

*Alcoholics Anonymous*, Works Publishing Company, New York City, 1954.

*The AA Grapevine*, international monthly journal of Alcoholics Anonymous.

*Twelve Steps and Twelve Traditions*, Alcoholics Anonymous Publishing, Inc., P.O. Box 459, Grand Central Terminal Annex, New York City.

### FOOTNOTES

1. II Thes. 2:17. See also II Cor. 9:8; Col. 1:10; II Tim. 2:21; 3:17; Titus 2:17, 14; 3:8; Heb. 10:24; 13:21; Eph. 2:10; I Pet. 2:12.
2. 12 Steps, as found inside the front cover of *the AA Grapevine* and in other AA literature.
3. Chase, Ernest L., *Alcoholics Anonymous, CMS Journal*, Vol. V, No. 6, Nov.-Dec. 1953.
4. Mann, Marty, *Primer on Alcoholism*, Rinehart & Co., Inc., 1950, p. 148f.
5. *Ibid.*, p. 150.
6. *Ibid.*, p. 150f.
7. *Ibid.*, p. 151.
8. *Ibid.*, p. 155.
9. *Ibid.*, p. 167.
10. *The AA Grapevine*, Vol. 10, No. 2, July 1953, p. 7.
11. Sister Ignatia had gone to St. Vincent's from St. Thomas Hospital, Akron, Ohio, the first religious institution to open its doors to AA (1939). See *AA Grapevine*, Vol. 10, No. 9, Feb. 1954, pp. 2-5.
12. *The AA Grapevine*, Vol. 10, No. 9, Feb. 1954, "A Jesuit Applauds AA", by William J. Smith, S.J., p. 18.
13. "The 12 Steps" as found inside the front cover of every *AA Grapevine* and in other AA literature.
14. The author's substitution to clarify the application of Christian living.
15. "A power greater than ourselves" can mean only one thing to the Christian—the power of the Holy Spirit through the work of our Lord Jesus Christ.
16. "God as we understand him": Christians will have no difficulty in accepting this phrase, except in the same sense that Mark Twain, years ago, replied to the critic who asked him if he was not bothered by the things in the Bible he didn't understand. The famous writer replied, "It isn't the things I don't understand, but the things I do understand, that bother me."
17. Adapted from "The 12 Traditions" found inside the back cover of *The AA Grapevine*, and in other AA literature.
18. The author has substituted "Church" for "AA". While some church groups may differ in certain respects with some of the "Traditions" here expressed, all of them are embodied in some form in many of our denominations, and this list certainly gives one cause for thought and re-thinking his church organizational doctrines. The "Traditions" are presented here for that purpose, not as the only or proper way a church should be run.
19. The Christian may add, "except through the Holy Spirit and the Holy Scripture."
20. "Sinning" is substituted for "drinking".
21. "Sinner" is substituted for "Alcoholic".
22. The author has substituted "Church" for "Alcoholics Anonymous".
23. Actually, the men who set AA in motion first found the spiritual experience which changed their lives in a spiritual, Christian church 20 years ago. They use the term "Higher Power which AA calls God" to include all in their program. "Somewhere about 120,000 men and women are now in their ranks, sober, industrious, God-fearing, happy, useful citizens." *Evangel*, Jan.-Feb. 1952. (61 Gramercy Park, New York 10, New York).
24. "There is nothing so discouraging as the resistance of the human mind to the introduction of knowledge."
25. Church people usually avoid the alcoholic because they do not understand him, and perhaps don't want to understand him.
26. Luke 9:50; Mark 9:40; see also Phil. 1:15-17.
27. John 14:16. See note 1 on p. 1136 of the Scofield Reference Bible.

---

## ANTHROPOLOGY

by

James O. Buswell, III, M.A.

---

### Anti-segregation Progress

Often the racial problems of the Union of South Africa are compared with those of our own South. There really is no basis for comparison since the historical backgrounds of the two are so vastly different, and also because the problems of a racial minority which is in power can hardly compare with those of a racial minority which is not in power.

More important, however, are the differences in basic ideology and direction of change which characterize the present administrations of each. While the Union of South Africa is using its legislative machinery to further intrench the concept and implement the practices of racial segregation and inequality, the United States is using its legislative and judicial powers to do away with racial segregation and inequality. Look at the record of some of the present administration's accomplishments toward that end:

### U. S. Measures Toward Non-segregation

First in importance was the Supreme Court's ruling that henceforth segregation in the classrooms would be illegal.

Among other items of interest reported by Val J. Washington, director of minorities of the Republican National Committee, in a pamphlet entitled "The Republican Party and the Negro", are the following:

1. There have been 250 appointments of Negroes to Federal policy-making positions.
2. In 1952 "nearly half of the Negro units were still intact in the army; today there are none."
3. Over three-fourths of the navy's Negroes were "in mess halls as servants," but "they are now serving in all branches of the Navy on an integrated basis."
4. All segregated schools on military posts are ended. This was accomplished before the Supreme Court decision.
5. Segregation is ended in all Veteran Administration Hospitals.
6. Washington, D. C. is now officially non-segregated.

This all serves to show the direction in which we are going. However, these items do not necessarily mean that discrimination is wiped out. It is all too recent a custom in Washington, as well as in many other cities, that a Negro, whether he is tidy and clean or not, whether he is in company with whites or not, *whether a member of the legislature or not*, is refused the privilege of trying on a hat or pair of shoes before buying. Nevertheless the concept of racial equality and the implementation of it in all walks of life is embodied in the ideologies of the large proportion

of the people, and enjoys a large measure of security in governmental administration.

### Classroom De-segregation

Of particular interest now are the varied extremes with which the ruling of the Supreme Court on de-segregation of schools has been received in the South. In a number of cases the acceptance has been very favorable and in keeping with the trends of our national racial equality emphasis. Witness the case of Hoxie, Arkansas reported in *Life*, July 25, 1955; also the case of the State of Texas whose educators and legislators alike are taking pains to implement classroom integration right away, and resolve the legal conflict between such practice and the existing State segregation laws later. Other states are taking just this kind of opportunity to delay de-segregation until all the legal red tape that can possibly be put in the way is cut through, while the existing segregation remains unmoved.

Another noteworthy example is the large Negro community in the South which has a high school superior to the "white" high school in town. The Negroes are actively engaged in urging the school boards of city and state to de-segregate. Here, at least, the Negroes cannot be charged with merely desiring the advantages of superior white facilities.

There is a group of states, however, which is actively opposing the Supreme Court ruling, in some instances merely in keeping with injured feelings at having to set about accomplishing a disagreeable task; in others, however, there is revealed a startling exhibition of defiant obstinacy and racist doctrines of a century ago, even among state leaders. Four examples will suffice to indicate the pulse of the situation.

#### Mississippi

Mississippi's last legislative session made it a penal offense for white students to attend any state-supported school that enrolls Negroes.

#### South Carolina

In their 1955 legislative session, South Carolina repealed the compulsory school attendance law, making it no longer illegal for a child to be kept out of school.

It was in South Carolina also that the recent deplorable incident involving Little League baseball took place, showing the popular lag behind the equality measures taken by certain leaders. The Cannon Street YMCA of Charleston entered a team of Negro boys in the Little League competition which was to involve regional, state, and finally national playoffs in what has come to be the Little League World Series held in Williamsport, Pa.

When the League's national headquarters ruled the Negro team eligible, the fifty-five white teams in South Carolina boycotted the Negro team and withdrew from competition, leaving the Negroes technic-

ally champions by default. They were not permitted to represent their state in the inter-state competition, however, because the League headquarters feared too great an imbalance at the playoffs if one team was passed directly from city to finals competition. Thus South Carolina was not represented in the Little League competition this year because the white teams, or at least their managers, could not accept the principles of racial equality that the Big Leagues have adopted long ago.

#### Alabama

As reported in the *New York Times* on July 23rd, the State Legislature of Alabama moved on July 22nd "to preserve classroom segregation." The substance of the report is as follows:

City and county school boards are given police power to "assure social order, goodwill and public welfare" in assigning pupils to grade schools and high schools. Now, although nothing is said about race or color in what follows, "its admitted purpose is to keep Negroes out of white schools." The report continues with the following important elements:

"Each school child would be given his assignment on an individual basis. . ."

"School boards are directed to consider the following factors in assignment of pupils:"

1. Available room and teaching capacity in the various schools;
2. the availability of transportation facilities;
3. the effect of admission of new pupils upon established or proposed academic programs;
4. suitability of established curricula for particular pupils;
5. the adequacy of the pupil's academic preparation for admission to a particular school and curriculum;
6. the scholastic aptitude and relative intelligence or mental energy or ability of the pupil;
7. the psychological qualification of the pupil for the type of teaching and association involved;
8. the effect of the admission of the pupil on the academic progress of other students;
9. the effect of admission on prevailing academic standards;
10. the psychological effect on the pupil of attendance in a particular school;
11. the possibility or threat of friction or disorder among pupils or others;
12. the possibility of breaches of the peace or ill will or economic retaliation within the community;
13. home environment of the pupil;
14. the maintenance or severance of established social and psychological relationships with other pupils and with teachers;
15. the choice and interests of the pupil; and
16. the morals, conduct, health and personal standards of the pupil.

Remember that all of these items are to be determined

for "each school child . . . on an individual basis" in assigning them to the proper school. It would seem that a vastly more elaborate testing and social sampling procedure will have to be employed here than any school board was ever equipped with before. Otherwise, assignment of students will have to proceed upon the basis of some much more simplified criteria which, in the minds of the members of the boards, will stand for "social order, goodwill and the public welfare" and will be able at the same time, if challenged, to have certain items from the above listed considerations substituted in its place. It would not be very difficult to guess what that criterion would be in this case.

#### Georgia

The worst and most infamous measures to keep racial segregation in the schools in the face of the United States Supreme Court ruling are being taken by the State of Georgia.

In their last legislative session they prohibited the use of public funds for integrated schools. The Attorney General, Eugene Cook, has appointed twenty-five "special deputies" to assist his office to preserve racial segregation in the public schools.

Finally, the Georgia State Board of Education has passed the following resolution:

Any teacher in Georgia who supports, encourages, condones, or agrees to teach a mixed grade, or any teacher who is a member of the N.A.A.C.P. (National Association for the Advancement of Colored People), any allied organization, or any subversive organization, shall have his or her license revoked and forfeited for life."

Members of the N.A.A.C.P. have until September 15th to swear that they have dropped membership.

This is the kind of thing the South Africans point to when we criticize the Apartheid policies. This is also the kind of thing which causes a smile when some say, "Oh, racial discrimination in the South is a thing of the past." This reflects an astounding revision to tactics based upon thinking that is years out of date. Can it really be happening in the U. S. A. in 1955? Part of the surprise at such a resolution is canceled when we realize the outdated racial philosophy from which it stems. As recently as 1953 Georgia State Representative David C. Jones and State Senator John D. Shepard were quoted by the *New York Times* of March 1st as saying "Inter-marriage produces halfbreeds, and halfbreeds are not conducive to the higher type of society. We in the South are a proud and progressive people. Halfbreeds cannot be proud. In the South we have pure blood lines and we intend to keep it that way."

Although our government and a large portion of the people are actively moving toward racial tolerance and integrated society, we evidently still have a long way to go in some quarters.

Wheaton, Illinois

August 15, 1955



---

## ARCHAEOLOGY

by

Allan A. MacRae, Ph. D.

---

A short time ago we looked at the epochal discovery of Old Testament manuscripts, recently made in the region of the Dead Sea. We saw that these scrolls provide remarkable corroboration of the general dependability of the text that has been passed down to us through many generations of copyists, while promising eventually to render valuable aid toward better understanding of many of its details.

This month we shall give our attention to the question of the New Testament text.

Only a few years ago an article in a nationally circulated magazine told of efforts to throw new light on the text of the New Testament, and spoke in such a way as to raise much question about its dependability.

It is unfortunate that the mass of Christians are little informed about the facts regarding the New Testament text. Actually we are in a better position to determine its correctness than we are with regard to any ancient non-Biblical texts. Sometimes our knowledge of a classical author is based only on one manuscript, and that perhaps a copy made in the twelfth century after Christ! In contrast to this, we have hundreds of manuscripts containing all or part of the New Testament, and many of them are from the fifth, sixth and seventh centuries. Some are as early as the fourth century. In the course of copying and recopying, divergences naturally crept in, but the great number of manuscripts that have been preserved gives us remarkable facility for determining the correct text. Where any large number of manuscripts differ, the variations are generally of little importance. In no case do they affect any vital doctrine.

In the article already mentioned, one of the headlines blaringly proclaimed that there was "even doubt about the correct text of the Lord's Prayer." In support of this statement, it was pointed out that in some of our early manuscripts the text of Matthew agrees with that of Luke in omitting the words: "For thine is the glory and the kingdom, and the power, forever, Amen" (Matt. 6:13; cf. Lk. 11:1-4).

It is an interesting question whether Jesus said these words in the prayer which He gave the disciples or not. Actually, however, it makes little difference to us. Jesus repeatedly taught that prayer does not consist in the repetition of certain words. The Lord's Prayer was given as a sample, not as a prescribed formula. Whether Jesus said these particular words in the prayer as He gave it on that occasion or not, they contain no thought that is not clearly taught else-

where in the Scripture, or that jars with the thoughts in the rest of the prayer. The Lord's Prayer was never intended as a magic formula, but rather as an example of the type of ideas which God wishes us to express in all our prayers. There is no question of the suitability of the words in this clause for use in our prayers. To know whether Jesus spoke them on that particular occasion would merely satisfy our curiosity; it would add nothing to our knowledge of His Will for us. The Bible is entirely free from error, and dependable, and this fact is in no way affected by insertion or omission of these words at this point. There is no case where any sizable number of manuscripts give a reading which would be contrary to definitely established scientific or historical knowledge, or which would contradict any doctrine.

When the King James version was written, hundreds of manuscripts were available, but most of them were fairly late. They were copies of copies of copies, but a great deal of care had been taken in the copying. The text was not as accurate as the text that we can construct today, but the differences are really comparatively slight.

Scholars have been greatly interested in trying to get our New Testament text just as exact as possible. One of those in the last century who was most interested in this task was the great German scholar, Tischendorf, who worked in many museums, and even walked to very distant places to visit little known monasteries, seeking to find new manuscripts. Tischendorf's great edition of the New Testament, with the variant readings of hundreds of manuscripts, was our leading authority on the text of the New Testament for many years.

In 1844 Tischendorf walked to Mount Sinai, far to the south of Palestine, to visit an old monastery that had many ancient manuscripts. He spent a long time hunting through its library, trying to find ancient manuscripts of value. Just as he was about to leave the place, he happened to see a basket filled with old parchment, ready to be taken out to be burned. He glanced at one of the sheets in it, and noticed that it was a page from the Old Testament, the writing of which was easily recognizable as being very ancient in type. Tischendorf asked to see it, and was quite thrilled to find that it was the most ancient copy of the Greek translation of the Old Testament that he had ever seen. He was able to take a few pages with him, but was compelled to leave the rest there. These few pages he deposited in the Royal Library in Leipzig. Tischendorf's report aroused much interest in Europe.

Eventually the interest of the Czar of Russia was aroused. As a great leader in the Greek Orthodox Church, the Czar would have much influence with the monks at Sinai. He sent them valuable presents, with a request that they should turn over this manuscript to Tischendorf for the library in St. Petersburg.

Tischendorf went to the monastery again in 1859. He had great difficulty in finding what he wanted, but eventually a man came to his room and showed him a manuscript which proved to have the entire Old Testament, and about two-thirds of the New Testament in it. He brought it back to Europe with him, and had it photostated and distributed. It proved to be the most ancient manuscript of the New Testament as yet accessible to scholars. It is now called the Sinaiticus Manuscript. Recently the Communists sold it for a half million dollars, and it is now in the British Museum in London.

There was only one manuscript known which was possibly older than this one. That was the so-called Manuscript Vaticanus, which has reposed in the Vatican Library for at least 300 years. Many scholars tried to get permission to study it, but found this very difficult. Once the noted English Biblical scholar, S. P. Tregelles, went to the Vatican with letters from the leading Roman Catholics in England, asking that he be permitted to study the manuscript. He was given permission to look at it, but not to take any notes. The Pope's men stood beside him, and if they saw him look with particular intentness at any page of the manuscript, they immediately grabbed it away from him and turned it to another page. Although he spent a month in the Vatican Library, he was not able to make any copies or to carry away much precise information about the readings of this valuable ancient manuscript. Tischendorf also tried hard to get access to it, with little success. It was not until 1889 that a Pope decided to make a change in the papal attitude. He opened the Vatican Library to scholars, and had a photostat of the Vaticanus Manuscript published. Today this and the Sinaiticus are considered our most valuable ancient manuscripts of the New Testament. If these two stand together, even in opposition to almost all the other Greek manuscripts, many scholars would accept their reading as against the others.

This is an extreme attitude. While these are the most ancient manuscripts we have, they are still from a time more than two centuries after the originals were put down. We do not have earlier manuscripts because before that time most writing was on papyrus, which does not last very long, except under extremely unusual conditions. These manuscripts are on parchment, which is much more durable. We have a very few manuscripts of the New Testaments from the fourth century, somewhat more from the fifth, and then in later centuries a great many. Some of these may actually rest back on earlier and better manuscripts

than either the Vaticanus or the Sinaiticus. It takes much careful study to determine the precise text at disputed points. However, most of these are of comparatively little importance. Hundreds of manuscripts testify to the remarkable accuracy with which our New Testament has been passed down to us. In the few points where errors of some significance have occurred in copying, we have far more evidence from which to determine which reading was in the original, than in the case of any other ancient document.

Within the last five years, a great step has been taken in adding new material for the study of these particular passages of the New Testament. Wendell Phillips organized an archaeological expedition in 1949, which went into Egypt and southwestern Asia. He secured permission from the monastery at Sinai to copy any of the manuscripts which he and his associates might desire. In January, 1950, he sent a group of scholars to Mt. Sinai. The Library of Congress lent them expensive microfilm cameras. They worked seven or eight hours every day, six days a week, looking over the various Biblical and other manuscripts, selecting the most important ones, and microfilming them, page by page. Hundreds of manuscripts thus copied in microfilm are now in the Library of Congress, and copies are available to any scholar on payment of a small fee.

During the same year, after finishing their work at Sinai, the scholars went to the libraries of the Greek and Armenian Patriarchs in Jerusalem, and copied more than fifteen hundred additional manuscripts, including about three hundred New Testament manuscripts, and two hundred Old Testament manuscripts. Many of these manuscripts are of great importance, not only for Biblical study, but also for the history and culture of the Near East in early medieval times.

Within the last two years further work of this type has been done. An expedition has gone to the twenty monasteries on the Athos Peninsula in the northeastern portion of Greece. In the libraries of these monasteries many manuscripts have been copied, including 160 additional manuscripts of the New Testament. Further detail about these expeditions is contained in recent issues of *The Biblical Archaeologist*, published by the American Schools of Oriental Research, Drawer 93 A, Yale Station, New Haven, Connecticut.

Faith Theological Seminary  
Elkins Park, Pennsylvania  
August 1, 1955

---

## BIOLOGY

by

Irving W. Knobloch, Ph.D.

---

The present article will bring to a close the series on evolutionary mechanisms started some time ago. In the previous articles we failed to distinguish between two types of variation. New phenotypes, produced by responses to environmental changes, are of doubtful significance in evolution because of the improbability of ever proving the inheritance of acquired characteristics. Only those variations produced by genotypic change can be of value. The mechanisms producing genotypic change have been discussed in previous articles. It seems appropriate at this point to consider the fate of new genotypes, once they are formed, by referring to natural selection.

When once a new phenotype has originated, it is in immediate competition with the better adapted normal forms. In some cases, the new organisms are able to survive in the same niche with the old; in other cases they do not survive the "struggle for existence"; and in still other cases they succeed only if a new type of environment can be provided. In this connection both plants and animals can escape to new habitats by powers of locomotion peculiar to themselves.

Darwin's theory of Natural Selection included variation, struggle for existence, survival of the fittest and a progressive and upward inheritance of favorable variations. He had no clear concept of the causes of variation because of a dearth of genetical and cytological facts in his day. His last point was also of doubtful value because in few, if any, cases was he drawing his conclusions from the behavior of species with genes homozygous for a character. Johannsen showed later that selection in material that is homozygous is unavailing. *New genotypes* must arise if natural selection is to have any value.

A good definition of Natural Selection is hard to find in the literature probably because there is a diversity of opinion about it. It seems to be surrounded by an aura of nineteenth century mysticism. It is spoken of as a "guiding influence" or as a "directing force". One view which is attractive to me at the *present time* is that natural selection is synonymous with "environmental resistance". It is largely the forces of the environment which determine the survival of a new genotype whether the forces are in or from the parent (embryo-sac, uterus, archegonium, gelatinous capsule and so forth) or whether the forces are operative after birth, or germination.

Schmalhausen (*Factors of Evolution*,—Blakiston Co. 1949 p. 25) says that Natural Selection gradually removes or neutralizes the great majority of all mutations except those that are viable. Irene Manton

(*Problems of Cytology and Evolution in the Pteridophyta*) says "Natural Selection acts oppositely to a progressive evolution since it tends to eliminate aberrations and to maintain the stability of the species unchanged". Thomas Hunt Morgan (*Evolution and Genetics*, Princeton Univ. Press, 1925 p. 26) mentioned that selection either by man or nature cannot create anything new but only make more of a certain type already existing or within the capabilities of the genotype. Harold Blum (*Time's Arrow and Evolution*, Princeton Univ. Press 1951, p. 193) is of the opinion that Natural Selection has no direct effect upon the genes themselves; the mutation of a gene is (not) guided in the direction of greater fitness. Finally, Michael F. Guyer (*Animal Biology*, Harper Bros. 1937, p. 606) says that "Natural Selection" can only operate after variations have appeared."

Most biologists agree, however, that Natural Selection (or Environmental Resistance, if you prefer) does operate in many cases and its actions determine which variants will survive and which will die. It is difficult however, to make a universal case out for the operation of selection (environmental resistance) as far as evolution is concerned. The wing of a bird, slowly developing through the ages, as a result of genotypic alteration, would clearly have no survival value. (The rebuttal to this statement is that it would not have it *as a wing* but the organism might still persist if the developing wing were no hindrance. Later genotypic changes could produce a wing.) Likewise, natural selection falls down for the electric organ of the eel, the trunk of the elephant or the variations found in the thrush family (to mention three oft-cited cases).

Others have, however, pointed out newer and more telling arguments against the evolutionary value of Natural Selection. Dodson (*Textbook of Evolution*, Saunders Co. 1952, p. 113) notes that the synthesis of arginine, an amino acid, by the mold *Neurospora* requires seven different genetically-controlled enzymes, each one useless without the other. He says that the idea that these enzymes should be preserved at the time that they were useless is incomprehensible and that the probability that all appeared *simultaneously* is also incomprehensible.

One might say then that Natural Selection does "weed out" those genotypes unfitted for a particular environment if the amount of variation exhibited is a "hindrance". On the other hand, certain variants may persist because the expression of their variability, while useless, is still not a determining factor in their struggle for existence.

If one is unable to gather a clear pattern out of the above regarding Natural Selection the fault is partly mine. However, it is also because there is no unanimity among biologists in regard to its (selection's) importance. The authorities quoted will bear witness

to this statement.

Another factor in evolution which must be considered briefly is that of "isolation". Although there are other types of isolation, we shall restrict our few remarks to "geographical" isolation. Islands, mountain tops and deserts are "hemmed in" by types of habitat quite different in nature. Free migration is somewhat, if not entirely, restricted and species tend to interbreed. No doubt this tends to stabilize a population and preserves certain genotypes. Apparently the phenomenon does not produce new genotypes by itself but simply acts in a passive fashion. Birds and insects on islands display striking differences when compared with the most nearly similar forms on a neighboring island. In such cases, well publicized in the literature, it seems reasonable to assume that geographic isolation has preserved genotypic variants on the various islands. A species can thus be said to have evolved into a number of groups distinct enough to be called separate species.

In summary we can say that

1. Only variations (new phenotypes) resulting from changed genotypes are of importance in evolution.
2. New genotypes can be formed by point mutations, chromosome aberrations, polyploidy or by hybridization.
3. Many "species" have undoubtedly been formed in the past and are being formed today by these processes.
4. This proliferation of species is one type of evolution.
5. The fossil record and present day experiments testify that this type of evolution has gone on and still goes on.
6. Due to certain imperfections in the fossil record, mentioned previously, it is not possible to state finally that this limited type of evolution has gone past the class or order category. Therefore it seems that an assumption of a very high order is necessary to bridge this gap. We do not ridicule those who accept organic evolution in the fullest sense of the words but personally we do not accept the full theory as proven without question.
- If one accepts the word "create" in the Book of Genesis one would expect that at least some of the species of plants and animals were created. The Bible does not give a complete category of species. Neither is it reasonable to assume that all present day species were created because of the certainty of genetic changes in organisms.
7. Selective processes may eliminate grossly unfavorable phenotypes. Evidently selection does not always operate because some variations from the "normal" have no selective value. The viewpoint is given that selective processes (or environmental resistance) is neutral in respect to aberrations which do not hinder survival.

8. Isolation of one kind or another promotes inbreeding and the fixation of types. Various genotypes, otherwise in danger of submergence, are thus preserved.

The A.S.A. is now considering bringing together in book form the affiliation's thinking about evolution. Actually the book, if published, would take note of the centennial celebrating the publication of the "Origin of Species" by Charles Darwin in 1859. Darwin's theory was a contribution to the "modus operandi" of evolution itself. Some parts of Darwin's theory are useful today even when talking about a limited type of evolution (as I have done). Possibly Darwin's greatest service to humanity was the stimulation of research which his book provoked. As long as it was assumed that the Bible taught the fixity of species there was no need for research. Much interesting and useful information flowed from the European scientists about evolution in the years following the "Origin of Species". For this we are grateful.

At the risk of being repetitious, I wish to make it clear that if there is any real weakness in modern scientific thinking about organic evolution it is in the failure of scientists to recognize the two apparent levels of evolution. Interphyletic evolution is *assumed* to be true because of the existence of intraphyletic (lower order) evolution. Everyone must decide for himself whether there is sufficient clear cut evidence to accept one type of evolution on the evidence of the other type.

East Lansing, Michigan  
August 1, 1955

---

## PHILOSOPHY

by

Robert D. Knudsen, Th.M.

---

Especially in times when there has been a disturbance of tradition or a moral confusion of tongues the philosophic search has been intensified for a universal principle of justice that would arch over the multiplicity of standpoints and offer a criterion for judging between them. Taking the term broadly, this search is for a natural law doctrine.

Greek philosophy was urged on to its greatest accomplishments in the attempt to overcome the position of the Sophists, for whom rules meant the technical means for the control of human opinion. Plato sought untiringly to rise above the variety of human opinions through a knowledge (*episteme*) of the transcendent and universal ideas, central among which were the ideas of the true, good, and beautiful. The high

Middle Ages found Thomas Aquinas adapting Aristotle to the Christian faith and developing a natural law doctrine that has dominated Catholic thought to the present time.

At the beginning of the modern era, the direction of humanism was established in no small way by the reaction to the terror and fatigue of the religious wars and the seemingly endless strife of the confessions. Because the belief arose that the religious made for division, the fateful attempt was made to find a new ground on which humanity could be unified. This brought a humanistic natural law idea, where the basis for unity was not sought in some particular doctrine, like the Christian faith, but in what was thought to be common to all, a *universal human reason*. Though he did not intend to destroy the idea of God, Hugo Grotius, an early advocate of this position, said that natural law would be valid even if God did not exist. That was to say that natural law did not require a religious foundation and justification. The basis for natural law was humanized and secularized. We are now living in the crisis period of this humanistic idea of universality.

This crisis can be summed up to a great extent by referring to a constellation of spiritual movements: *positivism, historicism, relativism, and scepticism*. These are by no means identical in meaning; but they are related, and together they contribute to the crisis of the humanistic ideal. Positivism proceeds from the given, the factual, the positive, as opposed to the normative. It tends to exclude everything that is not amenable to the methods used in natural science. Norms are regarded by the thoroughgoing positivist as being mere expressions of feeling, without cognitive meaning. They are neither true nor false, but are emotional exclamations, like the word, "Oh." Legal positivism discovers the ultimate source and ground of law in the will of the state. Positive law, written law, is the only law and is the expression of the will of the lawmakers. Historicism, in the meaning relevant here, holds that all human values and institutions are historically conditioned and changeable. They are all relative. Relativism, in turn, holds that all knowledge is only relative, valid only from a certain standpoint. One can see how these positions lead to the denial of universal, objective, unconditioned truth, which denial is scepticism.

As illustrations of ethical scepticism Hill (*Contemporary Ethical Theories*, New York: Macmillan, 1950) refers to two thinkers familiar to us in the field of sociology: William Graham Sumner (pp. 50f.)

and Karl Mannheim (pp. 52f.). Sumner believes that all human values arise as *folkways*, as customary usages. Philosophy and ethics are products of the folkways of a people. All ethical judgments are but the expression of customs of a specially forceful kind which vary from period to period and which have no special meaning beyond the fact that they are customs at a particular time. A thing is right if it is in line with the stronger customs of a time; it is wrong if it is not. To attempt to fight these strong customs, or even to attempt to judge them objectively, is vain. Karl Mannheim believes that even logic and mathematics are dependent on the socio-economic conditions of a time. Patterns of thought are always conditioned by their social origin. They are ideologies. It is clear that such positions make ideals the reflection of real situations and thus rob them of their ability to actively criticize the real.

Parenthetically we might observe that students in many of our Christian colleges are busy lapping up such theories, especially those of Sumner, for want of a Christian interpretation.

The constellation of sceptical positions has broken the ideas of a universal human nature, a universal human reason, and universal truth. The humanistic basis for unity is here dissolved. This destruction of the rationalistic, humanistic ideal has made a crisis in our Western culture. It has uprooted standards. It has contributed to a moral nihilism and has opened the way to a cynical use of power. It allowed power to be set against power, without any transcendent standpoint from which to judge. As Heinz Horst Schrey ("Die Wiedergeburt des Naturrechts," *Theologische Rundschau*, XIX (1951), pp21ff.) says, one of the most pressing problems after the collapse following the second world war was how to attain a new enduring feeling for law, which would define the nature and boundaries of the state, avoid the justification of tyranny and force, and erect a bulwark against anarchistic freedom.

Legal positivism absolutizes the will of the law-maker and destroys the possibility of criticizing positive law. Against this the attempt is again being made to find a criterion above positive law. The question of the *just* law is again being asked. This attempt has provoked some of the deepest contemporary philosophical and theological thinking. It offers a splendid opportunity for Christians to show the relevance of their Biblical faith.

San Leandro, Calif.

August 8, 1955.



---

# PSYCHOLOGY

by

Philip Marquart, M.D.

---

It is refreshing to find a writer of the world, writing in the psychological and the counseling field, who fails to turn off his intellect when he speaks of Christian things. As editor of the *Journal of Clinical Psychology*, Dr. Frederick Thorne has, for several years been presenting the merits of directive counseling as well as the more popular non-directive therapy. Previous to that he became successively an exponent of the Freudian viewpoint and then of the more scientific school of psychobiology of Adolph Meyer. In his search for a way of applying the strict scientific method to the fields of human relations and counseling, he became interested in taking over the Clinical Method from the field of modern Medicine and applying it to the Psychological field. He sums up most of the problems in this wide area in *Principles Of Personality Counseling*, which is published by the Journal of Clinical Psychology, Brandon, Vermont.

Perhaps the main problem of all is very succinctly described in a little paragraph on Pastoral Counseling (p. 20). What he says in this passage could equally apply to any situation in which Counseling along Christian lines is used. The attempt was made by Christians and pastors to bring in the methods of psychiatry and of psychology to supplement the older spiritual methods. This has set up a serious ideological conflict between these two very dissimilar methods,

says Thorne. The so-called spiritual methods are based upon revealed Truth and are related to theological doctrine, ethics, and authoritarianism, and to the theory that man has a free will and is therefore responsible for his conduct. He shows that these pastors have had special difficulty in incorporating the methods of Freudian psychoanalysis. Thorne frankly admits that the Christian acceptance of modern psychiatric concepts "would automatically force a revision of many theological concepts". "Research evidence concerning the validity of spiritual approaches to counseling and psychotherapy is lacking".

Thorne has here placed his finger upon the very core of the problem, a problem of which many Christians and many counselors have no awareness. Each counselor uses whatever smattering of each of the above methods that he himself chooses, for whatever reasons he chooses them. The result is an electric mixture of psychiatric and Biblical elements, differing with each counselor. Such methods of necessary compromise must necessarily be based upon theoretically consummated syncretisms.

What is the solution? I cannot tell. It all depends upon how much we believe in the validity of Christ's power to rule His earth in any way He chooses. I certainly agree with Thorne that the so-called "couch method" cannot be used by Christians except under great difficulties. As to Christian counseling, should we place the primary emphasis on the Biblical or the secular methods?

\*Thorne, Frederick C., *Principles of Personality Counseling*, 1950, Journal of Clinical Psychology, Brandon. September 29, 1955