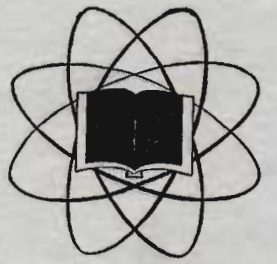
JOURNAL

of the

AMERICAN SCIENTIFIC AFFILIATION



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

Volume 7 **June, 1955** **No. 2**

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

The Journal Of The American Scientific Affiliation

Vol. 7 JUNE, 1955 No. 2

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The Journal of the American Scientific Affiliation is published quarterly, March, June, September, and December by the American Scientific Affiliation. The publication office is located at 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

EDITOR'S NOTE: The ASA library is located in Wheaton, Illinois and Dr. R. L. Mixter is the Librarian. To acquaint you with it, he was asked to make some comments, which are presented below:

The library of the A.S.A. was accumulated to help those at a distance from an apologetics source to have a readily available supply of sound, sane, and scientific literature. Any book may be borrowed at any time by any member by asking the librarian for it. Probably a month is long enough to keep a book unless a longer time would aid a research paper.

In our collection should be each significant recent book, so we ought to acquire such books as Ramm's THE CHRISTIAN VIEW OF SCIENCE AND SCRIPTURE, Clark's A CHRISTIAN VIEW OF MEN AND THINGS, and Carnell's AN INTRODUCTION TO APOLOGETICS, the Eerdman prize-winning book published in 1948. If you have read a volume that you consider worth reading from the Christian and scientific point of view, let the librarian know so he may suggest its purchase by the executive council. Obviously we would like to have copies of books and articles which you have written. An attempt will be made to own all books reviewed in the Journal.

A few titles are listed to show some of our acquisitions. THE TRANSACTIONS OF THE VICTORIA INSTITUTE, a set nearly complete from its inception, are comparable to volumes of the Journal of the A.S.A. Published in Great Britain, they give some of the best English thought on our mutual concerns. Our Journal occasionally reprints articles from this source. SCIENCE AND CHRISTIAN FAITH by Edward Le Roy Long is an expression from the liberal viewpoint, as is also Morrison's MAN DOES NOT STAND ALONE, a reply to Julian Huxley's MAN STANDS ALONE. Morrison's work was reviewed in the *Readers Digest*, December 1946 as "Seven Reasons Why a Scientist Believes in God".

Some books have had a flare in Christian circles but have been repudiated by careful criticism. Perhaps you wish a sample as an illustration of evangelical eagerness. I prefer not to publish the titles, but will send a reply to any queries for suggestions. Should you be writing on scriptural science, the librarian would gladly list titles he has pertaining to the subject. If you wish a list of the books now on hand, please write to the librarian.

What can you offer as additional functions of our books or their guardian? Your letter of helpful hints will be appreciated. "Reading maketh a full man".

R. L. Mixter
1006 N. President St.
Wheaton, Illinois

Dr. J. R. Howitt has for several years been Chairman of the Constitutional Revision Committee. In this he has worked almost entirely alone due to the geographical spread of the Committee membership. This work has been difficult because of the diversity of opinion on the subject and it is a thorny problem. He has put in a lot of work on the revision and has now terminated it. The A.S.A. appreciates the efforts he has given to this project.

Dr. Howitt has asked that we publish his thanks and appreciation for all of the letters he received concerning this topic, many of which he was unable to answer individually because of the pressure of time and work.

Progress Report on the 1955 ASA National Convention, Star Ranch, Colorado Springs August 23-26

Tentative Program

Dr. Roy M. Allen: The Nature and Formation of Sedimentary Rocks
Dr. Robert P. Dilworth: Paradoxes in Mathematics
Dr. John F. Gates: Time and the Timeless God
Mr. George J. Jennings: Geographic Implications in Holy Land Loci
Mr. Robert D. Knudsen: Karl Heim and the Transformation of the Scientific World View
Mr. Melvin J. Loewen: Objective Interpretation: A fiction?
Dr. Russell L. Mixter: The Christian Church and Implications of Scientific Ideas of 1955.
*Dr. Kenneth L. Pike: Communication in Relation to the Structure of Behavior
Dr. Jon H. Rouch: Christian Physicians Look at Faith Healing
Dr. George K. Schweitzer: Symposium on Cosmology, with other participants: Mr. J. Lowell Butler, Mr. Roger W. Rusk, Mr. Lawrence H. Starkey
Mr. Herbert Seal: Counseling—A New Opportunity in Christian Witnessing
Mr. John C. Sinclair: Experimental Basis of Evolution and A Scientific Interpretation of Genesis I
Dr. Brian P. Sutherland: The Victoria Institute
Dr. William J. Tinkle: Ptolemaic Astronomy Reenacted
Mr. Maurice A. Yoder: Does Human Anatomy and Physiology Lend Credence to Special Creation

*Guest speaker. Dr. Pike is Executive Director of the Summer Institute of Linguistics (Camp Wycliffe).

Other Sessions

Mr. George Speake: a Sermon from Science. Evening meeting in Colorado Springs.
Dr. Karl Turekian: All-day field trip via Garden of the Gods to the famous Florissant fossil beds.

(Continued on page 7)

*Christian Theism and the Empirical Sciences**

CORNELIUS JAARSMA, Ph.D.
Professor of Education, Calvin College,
Grand Rapids, Michigan

Introduction

It is entirely clear to A. Cressey Morrison that "Man Does Not Stand Alone" in his little volume by this title. There is only "one chance in a billion" he concludes, "that we and all else are the result of chance." According to Morrison this marvelous universe *could* be a product of chance, but the facts overwhelmingly indicate that "it did not so occur."

Many scientists would agree with Morrison that some supreme intelligence infinitely more comprehensive in grasp and power than human intelligence is back of this great universe of ours. Many would agree that the facts so overwhelmingly point to design or purpose in the adaptation of natural phenomena to life that this conclusion is inescapable.

While we are glad to note such recognition of a higher power, it is a far cry from the acknowledgement of the supernatural God of the Bible. Some sincere Christian students mistake this conclusion of certain scientists for a confirmation of a Christian view of God and the world. The Christian view of God is not logically found at the end of some propositions or at the conclusion of some empirical observations. Quite on the contrary the God of Christianity as the Creator is the unconditioned Conditioner of all things, including the very facts and conclusions of science. The Christian view of God and the world and its relation to the sciences cannot be contained in the concepts of the scientists.

What Our Problem Is

It is our purpose in this paper to ascertain what place the sciences occupy in the Christian life and world view. Christian theism is the view of God and the world founded on the Scriptures as God's infallible revelation of Himself and His work to man. The empirical sciences are the sciences based on observational and measurable data. It is more exact to speak of the sciences than of science. The latter is an abstraction. We do not study science, but the various data classified as physics, geology, etc. Is there a meaningful relationship between the content of our faith as given in the Scriptures and the thinking based thereon, and the data, hypothesis, and conclusions of the sciences? A world-life view cannot escape the challenge of this problem.

This problem is not the equivalent of the old problem of religion versus science. This problem of religion versus science was predicated on the proposition that religion gives us one set of data and science another. It was held that a conflict between their respective conclusions refuted one or the other, generally religion. We must recognize that while religion is central in the Christian view of the world, it does not give us the data for the knowledge of that world. Likewise, while the data of the sciences are legitimate sources of knowledge, they cannot be considered determining factors in the structure of things without the true presuppositions of that structure.

Three Basic Questions

To deal with our problem with some degree of adequacy we should try to answer three important questions:

1. What constitutes the Christian life and world view?
2. What is the nature of the sciences philosophically speaking?
3. What place do the sciences occupy in the Christian life and world view?

Historical Survey

Before we can enter into this discussion we should clarify our thinking by a bit of historical perspective.

In Hebrew thought the problem under consideration never arose. "The heavens declare the glory of God," and "I am fearfully and wonderfully made; wonderful are thy words," express Hebrew thought on cosmology, anthropology, etc. To the Hebrew race were committed the oracles of God that they might give to the world the Word of Truth. The natural world was to their thinking the great arena in which transpired the great work of God.

It was for the Greek mind which had no other light than the natural light of human reason to explore the natural phenomena for hidden truths of the universe. Science was to them natural philosophy, the data of their observation sources for speculation concerning the intellectual and moral problems of mankind.

Early Christianity which followed in the tradition of Hebrew thought clarified and enriched by the work of God in Christ and through the Christian Church came into conflict with the cosmology and the ethics of the Greek mind. The supernaturalism of Christianity had no basic common ground with the naturalism and idealism of pagan thought. The issue became especially clear in the great work of Augustine.

*Editor's Note: This was originally published as ASA Monograph One in 1947 and is now out of print. The Council's decision was to republish it as a Journal article. It is presented here with minor revisions by the author.

The Scholastics sought in various ways to show the relationship of revealed knowledge to the natural light of reason as developed in natural philosophy. Throughout the scholastic period we find continually the attempt to bolster the Christian faith with the logic of natural philosophy, or where this failed to permit a dualism of faith and reason, or even to suppress natural knowledge. It was under these confused conditions that the empirical sciences arose during the scholastic period.

Beginning with the sixteenth century philosophy goes its own merry way independent of the authority of dogma and church. The sciences still largely under the parental roof of philosophy joined in the breach.

It was during the eighteenth and especially the nineteenth centuries that the empirical sciences set up house for themselves, followed their own data and devised their own methodology. The sciences became increasingly proud of their achievements in the natural sphere of operation.

They made bold to make pronouncements on philosophical and religious issues. Thus the sciences ushered in a scientism in which the sciences claimed for themselves the whole sphere of human knowledge, leaving to faith and reason the unproved and the nondemonstrable. Philosophy was left the little corner of speculation beyond verifiable knowledge. And faith, far from being considered a source of knowledge, became at best an asylum for ignorance.

What happened to Christian thought during these centuries? It was relegated to religion which was variously interpreted as a feeling of dependence or the expression of deeper spiritual urges unrealized. At any rate, it was considered to have no determining significance in the field of knowledge. Those who still held to the evangelical historical Christian faith either turned their backs on the sciences as a source of temptation to digression from the faith, or entertained the findings of the sciences dualistically with no attempt at integration. So today we find evangelical historical Christianity without a message for the culture of our time except that of evangelism.

Christian educational institutions in so far as they are still loyal to the historical interpretation of Christianity have almost without exception confined their distinctiveness to worship, Bible teaching, and evangelism. The academic fields of learning remain as secular as in any non-Christian institution of learning.[1] Indeed, modern fundamentalism should have (I am afraid it does not have) a very uneasy conscience. They deny in the academic fields the very Christ they profess in the religious life. This amounts to nothing less than an intolerable and paralyzing dualism.

From this brief historical survey the challenge of our problem should be evident. We must see the field of the empirical sciences, as we should the entire field of culture [2] in the light of the whole Christian truth. To this discussion, then, we turn at this point.

Nature of the Christian Life and World View

Christianity is first of all a religion. That is, it involves the personal relationship of the creature to his Creator. As lost sinners, saved by grace, we are restored to fellowship with God. All things have become new. In the presence of God our entire life's perspective has changed. We are living from a new principle, not merely in our moral and religious life, but in our intellectual life. Accepting Christ by faith did not require that we set aside our thinking, but our thought life has been reoriented. From the structure of thought of our own making, we have entered into the structure of thought of the Creator, who only is the source of true knowledge.

It becomes evident then that Christianity is more than a religion. As religion, Christianity gives us the very structure or framework of thought. As a system of thought, it comprises the Christian view of God, man and the world. These three concepts, God, man, and the world, have constituted the subject of philosophy throughout the ages. Historically philosophies can be classified according to which of these three concepts they made primary in their systems. If God is primary, we are dealing with some kind of theism. If man is primary, with some kind of humanism. And if the world is made primary, we are dealing with some form of naturalism or realism. Christianity recognizes the God of the Scriptures as primary, and is therefore known as Christian theism.

What is the basis for a Christian life and world view, a Christian view of God and the world, of Christian theism?

The primary basis for the Christian life and world view is the fact of God. He is the supreme fact, the one unconditioned fact that conditions every other fact. In the beginning God. This "in the beginning" has not only chronological significance, but logical importance. Facts have no being without God, nor can they continue as facts apart from God. He is the presupposition of all things. The fact of God must be taken into account to give adequate, yes, true interpretation of other facts.

The Scripture clearly teach this primary position of God. "In the beginning God . . . "; "I am that I am"; "I am the beginning and the end." These and similar statements in the Scriptures point out what God says concerning Himself in relation to other beings. He is the Being of all being. From the Scriptures it is also clear that He is the Upholder, Sustainer, and Provider of all being. He makes final disposition of all things according to His eternal counsel. All

1 There are a few notable exceptions to this generalization. It should be added that I know of a few Christian colleges which are making a real attempt to integrate their educational program in terms of a world-life view founded on the Scriptures.

2 See C. N. Cochrane, Christianity and Classical Culture, 1940.

things operate within the sphere of His eternal counsel and decree.

On the ground of Scripture we speak, therefore, of God as the Absolute, Personal God, the wholly self-sufficient, unconditioned Being who is personal in character.

This supreme fact of God is the presupposition of all other facts. It gives structural significance to all facts, for all things are of Him. He only is originally, and all things are of Him, therefore, derived. Facts have their true interpretation only when viewed in relation to the all-conditioning fact, God.

From the supreme fact of God follows the great fact of creation. It pleased God in His infinite wisdom to call forth out of nothing and according to His own eternal decree a universe which is to realize His purpose. The fact of creation is clear from the Scriptures, and "its (the Scripture's) account of creation has not been changed by the knowledge acquired since it has been written". [3] The world and all things in it are creature of the Absolute, Personal God. Man will understand himself and the world only when he views all things in the light of their creaturely relationship to God.

Creation is not hypothesis of the sciences, nor a conclusion of scientific research. It constitutes a basic principle of interpretation as a structure of thought given us by divine revelation. In creation the thought of the Creator is expressed as a revelation of Himself. The non-Christian scientist in his research would deal with facts as brute, uninterpreted facts. What he is really doing is using facts as raw materials for his own structure of thought. He presupposes that human experience can furnish the structure of thought for correct interpretation of the facts of experience. But, according to Scripture, his presupposition is seriously in error. The structure of thought in the universe and the structure of thought in the human mind find their correspondence in the Logos of God. In the principle of creation the supreme fact of God in His creative word is evident. In the principle of creation we enter into the structure of thought in the Creator, who only is capable of interpreting truly the facts of created being.

In creation the Self-revealing God makes Himself known to minds of His own creation. In his original perfect fellowship with God, man knew God perfectly as a created finite intelligent being who can know God from the Creator's handiwork and from his communion with God. In the fullness of His Being God was even then incomprehensible to man. When sin broke off this original relationship of man with God and God's creation, the God of grace stepped into the breach and revealed Himself in a special manner of which the written word infallibly recorded for us is the culmination in this New Testament day. The Christian is by virtue of God's grace in his life initially restored to the original relationship of the creature with his Creator. All things are become new. He now lives from the principle of divine truth recorded infallibly for him in the Scriptures. He is renewed in his thought life in that he is oriented in the work of God in creation.

To the Christian, therefore, the work of God is unfolded before him in the world of nature as in the world of culture. There is only one God who reveals Himself as one in the diversity of being of His own creation. This the Christian has come to know through the written word and the work of the Holy Spirit through the word.

To the natural man of sin the world of human experience is so much raw material which he orders into his own thinking process. His vision is closed to the revelation of God. Hence, the Christian student of science can never share with the unregenerate the common ground of supposed brute fact. He cannot join in the slogan, "let facts lead where they will." In truth facts do no such thing to any mind. The thought structure of the unregenerate mind directs the facts in the case of non-Christian thinking.

The Christian student of science frankly, without apology, and legitimately take the position of a God-interpreted reality in revelation. He takes this position over against the non-Christian scientist who presupposes the autonomy of the human mind in experience.

Another important consideration that enters into the discussion of the Christian life and world view is the nature of faith. For our purpose faith may be defined as the mind resting in the sufficiency of the evidence. We believe this or that to be true when we consider the evidence adequate, though not all the evidence is at hand. The Christian faith is the mind's response to the evidence of the gospel, a response wrought in the unregenerate heart by the Holy Spirit, in regeneration and conversion. The great truths of God's recorded Word extend and enlarge the evidence for saving faith. The supreme fact of God, the creation of God as recorded for us, and the revelation of God to us and in us are fundamental in the evidence of the faith implanted within us.

So considered, faith is not the asylum of ignorance to which are assigned the things we believe but do not understand. Nor is faith the sphere of religion, and reason or understanding the sphere of knowledge. Neither is faith based on reason in the sense that we believe a thing true or false because we understand it. The Christian faith is the source of knowledge which is basic to the true understanding of all things experienced.

The Christian life and world view is the framework of thought, the thought structure based on the supreme fact of God as Creator who reveals himself to man. It

3 A. Cressey Morrison, Man does Not Stand Alone, p. 101.

is in this framework that the Christian views the facts of created being. To lose sight of this orientation to thought is to lose the only source of true interpretation of experience.

Nature of the Sciences

When we speak of science or the sciences today, we generally refer to that restricted field of knowledge which deals with the objective, measurable, demonstrable, data of our experience. Sometimes referred to as the exact sciences, they can demonstrate objectively and measurably the nature and operation of their data. The observation of given data can be repeated by the same person or other persons at various times and at various places for continued verification and for extension and improvement of hypothesis.

Objectivity, verifiability, and measurability, and in some sciences experimental control make the sciences distinct from the humanities and the arts. The latter do not furnish data for continued verification and measurement.

When we speak of empirical sciences we restrict the field still further and refer very specifically to data that are sensible, that are subject to and dependent upon the sensory processes in our experience. The data of the empirical sciences are manipulated as external to and independent of our mental action. They are reported and recorded as observed. These characteristics give the sciences their objective and universal verifiability. No personal reference or rational proposition may enter into the objectivity of their data. They must be reported and recorded for what they appear to be.

There can be objection to this objectivity and verifiability from any source. The laboratory scientist is true to his profession and loyal to the truth only when he reports what he observes under the circumstances indicated. No philosopher, no theologian, no artist, no moralist may tell him what he may or may not observe or report. In this sphere the sciences determine their own data, their own methodology, and their course of research. Dogmatism has no right to encroach upon the search for truth in the sciences.

When the sciences claim for their data and for their methodology inclusiveness, science becomes scientism. It is then that the non-Christian's autonomous position begins to count, for then the scientist begins to claim for his results more than the data and the circumstances permit. The scientist brings to his data a structure of thought which implicity or explicity gives to his data a relevancy not contained in the data themselves. He works upon presuppositions which have determinative significance for his conclusions. When the scientist is not aware of these presuppositions, the outcome of his research may carry him far beyond the conclusions justified by his study. Frequently he will become involved in gross error having misconstrued his findings. Very pertinent data are omitted because they are excluded by presumption. When the primary fact of the Self-revealing, Absolute, Personal God is ruled out as a determinative factor in the interpretation of data and the operation of these data, erroneous conclusions are inescapable.

To avoid the fallacy of scientism the empirical sciences should recognize several limitations in their field of research. First of all the empirical scientist is dealing with sensory data which, though being independent of mind, manifest characteristics dependent upon mind. Furthermore sensory data are not permanently segregated from non-sensory data, though for purposes of analysis such separation may temporarily be made. Likewise, if he fails to recognize his creaturely relation to His Creator he will substitute for that conscious relationship an autonomy which will condition his interpretation accordingly.

Empirical sciences must recognize that there are other sources of legitimate knowledge than the sensory processes and their manipulation through perceptions in thought. Other forms of knowledge are not merely speculation, but frequently as much the fruit of research and inquiry, as legitimate and frequently more fundamental than the knowledge gained in the laboratory.

Neither can the empirical scientist appeal to the scientific method in its spirit and attitude as the key to all search for truth. The agony of suspended judgment which is the spirit and attitude of the scientific method has its place in human inquiry. Premature judgment is the source of many woes, intellectually as well as in action. But this agony may arise from the scientist's failure to give an account of his own thinking to himself. This seems often to be the case rather than the absence of adequate evidence.

The empirical sciences are very reluctant to give up their recently conquered territory to the philosophical disciplines, but many students of the sciences are once again beginning to realize that the sciences belong to the whole family of human knowledge and that they by no means occupy the commanding positions recently claimed for themselves. Few, very few, recognize that the sciences of our day operate in complete ignorance of, and in entire indifference to, their only source of true understanding.

What Place Do the Emperical Sciences Occupy in the Christian Life and World View?

From our discussion so far I trust it has become clear that as Christians we are implicitly, if not explicitly (the latter should be true of all of us) committed to a distinctive view of man and the world because we are born of God. Our Christian faith implies a view of man and the world centered in the supreme fact of God.

The empirical sciences do not escape the revolutionary effect of this change that has been wrought in the Christian student of science. He views all data of his observation revelationally. This means that the pre-interpretation of God is primary and the only avenue to true interpretation.

Let me state, then, the place of the empirical sciences in the Christian life and world view in terms of certain definite propositions. These statements make no claim to be exhaustive of course, but they represent an attempt to integrate our thinking in the field of knowledge.

As a creature of God, the Christian student of science recognizes the following basic truths with reference to his field of study:

1. The object of scientific exploration is the handiwork of God in which His thought is manifest and disclosed.

2. The world has being independent of our knowing, but not independent of God's knowing. God's knowing is the conditioning factor of all being and the true interpretation thereof.

3. Man was charged originally with dominion over God's creation. This charge has not been relinquished and remains man's responsibility and his opportunity. This charge should be the scientist's motivating factor in research.

4. Man's dominion is to be subordinate to God and in harmony with His purpose for the world.

5. Scientific truth is part of the great unity of truth, the many and the one. There can be no conflict among the various manifestations of the great unity of truth.

How Does the Christian Student of Research Operate?

1. He recognizes that all fact is conditioned by the supreme fact which is God. The interpretation of facts is determined by Who God is and what God says about man and the world.

2. He recognizes the validity of the scientific method in the gathering and classification of data, in the formulation of hypotheses, and in the verification of hypotheses. He uses this method, however, acknowledging not only its limitations as a restricted field of search, but employing it rightly oriented in the presupposition of Christian thought.

3. All hypotheses and theories he formulates in full consciousness of the unity of all truth, the center of which is the Word, the Logos of God.

4. He recognizes the deductive nature of truth, though he employs the inductive to extend his understanding and the application of ordained truth.

Conclusions

1. As students of science we are first of all Christians by faith, according to the Grace of God.

2. This faith in the God of the Scriptures, in His revealed Word, and in His redemptive work implies the very presuppositions for all our thinking.

3. The empirical data of the sciences are given their true structure when integrated in the unity of Christian thought based on revelational presuppositions.

4. It is the responsibility of the Christian student of science to extend man's dominion in the objective realm of nature under God.

5. In this relationship the empirical sciences acquire apologetic value for the Christian faith and strengthen the proclamation of the gospel.

1955 ASA NATIONAL CONVENTION

(Continued from page 2)

Newest Moody Institute of Science film: Time and Eternity.
Annual business meeting.

Withdrawals

So fine has been the response to the call for papers that several promising ones have not found room on the program. If any one now on the program finds it necessary to withdraw his paper, the Committee should be informed at an early date. In this way it may be possible to accept some of the papers now on the waiting list.

About Star Ranch

Star Ranch, of the Young Life Campaign, is located six miles south of Colorado Springs and 76 miles from Denver. Its altitude of 6600 feet provides cool nights and bright, sunny days. At the present time it is estimated that the rate for the ASA Convention will be about $5.00 per day, the same price paid by the high school campers.

Program Committee:

Walter R. Hearn
Robert D. Knudsen
George H. Fielding, Chairman, 5 Holiday Drive, Alexandria, Va.

POSITIONS OPEN

Westmont College, Santa Barbara, California, is in need of a teacher each in Biology and Chemistry, preferably Ph.D.'s. Correspond with Roger J. Voskuyl, president.

*Biochemical Complexity and Its Significance In Evolution**

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

I should like to begin my first paper before the American Scientific Affiliation with that classical definition of a biochemist which differentiates him from other species of the genus Chemist. According to this epistemological trilogy, a physical chemist is a chemist who makes very accurate measurements of the properties of very *im*pure substances; an organic chemist is one who makes very *in*accurate measurements on extremely pure compounds; and a biochemist is someone who makes the sloppiest kind of measurements on the crudest sort of materials. This would be embarrassingly accurate were it not for the fact that most biochemists are educationally heterozygous, and carry in their genetic make-up either a dominant or recessive trait for the more exact and quantitative branches of chemistry. This accounts for the healthy and vigorous condition of the breed today; *i.e.*, we are purifying the materials we study, and our measurements are becoming more significant. This has allowed a substantial theoretical framework to be established, or in other words, has allowed biochemistry to take its place as a science, capable not only of further development itself, but also of making an impact on other disciplines and of influencing their course of development.

It is this impact of biochemistry on evolutionary hypotheses which I am discussing today. Whatever our theory of the mechanism of variation among living things, we must all agree that in the last analysis (or perhaps the next-to-last!) such variation either is *caused by* or *results in* changes in the arrangement of specific atoms in specific molecules in the living cell. J. B. S. Haldane was essentially correct when he said, "Our final theory of evolution will see it largely as a biochemical process" (1). That is to say that the predominant theme in evolutionary considerations in the future will be *metabolism* rather than morphology (2).

The biochemical information on which such a structure must be built has come slowly, but the rate at which it is accumulating is now accelerating quite rapidly. For generations chemists have been isolating and purifying the products of metabolism of the widest variety of living organisms. As you would expect, compounds which are relatively stable, or in other words, compounds of low levels of chemical energy, were the ones which were first isolated and studied, in contrast to more complex, less stable molecules we shall discuss later on.

Even though a number of such stable "natural products" have been known in reasonably pure form for a very long time, it is only in modern times that analytical and synthetic methods have been perfected for the determination of their structure. For example, crystalline cane sugar was known and used as early as 300 A.D. (3), but its chemical structure was not established by degradation definitely until around 1927, its *in vitro* enzymatic synthesis not accomplished until 1944 (4), and its unequivocal chemical synthesis only very recently reported (5). The first amino acid to be isolated was a relatively simple molecule, cystine, which Wollaston obtained from urinary calculi in 1810; but it was not until 1846 that a correct analysis was reported, and not until 1904 that its structure was finally established (6). A characteristic material from opium was first crystallized as early as 1803, and morphine was isolated and recognized as an alkaloid in 1814 (7), but its final proof of structure by total synthesis was only recently accomplished (8). The "unorthodox" and unexpected structural features of some of the antibiotics produced by lowly micro-organisms are having a profound effect on modern organic chemical theory (9).

The structures of hundreds or even thousands of chemical compounds produced by living organisms are now known with certainty. Some morphologist, resenting the obsolescence to which I have assigned him in a previous paragraph, may care to point out that all of this structure business is really just *chemical* morphology, which is certainly true; but the understanding of such chemical structures is only the starting point of modern dynamic biochemistry, whose goal is the understanding of the *reactions* by which such compounds are produced. Biochemists in the past two decades, using such penetrating and precise methods as the isotopic tracer technique, have elucidated the chemical steps by which many compounds are produced biologically; as can be seen from the chapters on

*Paper presented as part of a symposium on Entropy and Evolution at the Ninth Annual Convention of the American Scientific Affiliation at Harrisonburg, Virginia, August 24-26, 1954.

"Intermediary Metabolism" in any up-to-date textbook of biochemistry (10), or the very readable book on metabolism by Ernest Baldwin of Cambridge University (11). And now, without going into detail, I should like to mention three areas of investigation in which our understanding of these metabolic pathways is having an influence on evolutionary thought.

The first of these is COMPARATIVE BIOCHEMISTRY. Comparative biochemistry deals with biochemical relationships between different species. Biochemists have always made use of a variety of organisms in metabolic studies because certain types of organisms offer specific advantages for each type of investigation. However, a relatively insignificant number of the thousands of species known have been studied biochemically at all, and of these an even smaller number have been studied thoroughly. In recent years attempts have been made to investigate certain aspects of the metabolism of representatives of at least the major genera. Studies of nutritional requirements, nitrogen excretion, oxygen transport, etc., have been made in a reasonably systematic manner. Modern microchemical and particularly chromatographic methods are yielding quantitative information of genuine value. At the present time, classification of species along biochemical lines more or less parallels the classifications previously made along morphological lines (1); or to boil it down to the simplest terms, animals which look alike, *are* alike biochemically, and animals which appear to be different, *are* different. Some of the difficulties encountered in such studies are the variability among different organisms within the same species (emphasized recently with regard to human beings by R. J. Williams (12), the manipulation of the smaller species to obtain sufficient quantities of their tissues, organs, or secretions for analysis, and the decision as to what constitute the really significant properties for comparison; similar problems are inherent in any kind of attempt at biological classification. A very satisfactory introduction to this field is provided by another very readable little book by Ernest Baldwin (13).

The second area is BIOCHEMICAL GENETICS, which deals with metabolic differences among subsequent generations within a given species. The finding that certain mutants of micro-organisms are unable to carry out specific metabolic reactions has made microbiology a valuable tool in the study of metabolic pathways. Beadle discovered in 1941 (14) that such "biochemical mutants" of the mold *Neurospora crassa* could be produced by artificial means such as irradiation, and the theory soon developed that a single gene may control the production of a single enzyme and thus be responsible for a single step in a chain of metabolic reactions. But biochemical investigations on higher plants and animals and also on man have their influence on genetics. Itano's discovery of an electrophoretically abnormal hemoglobin in people with sickle cell anemia, and subsequent investigations in this field (15) have led to the concept of inherited "molecular disease." Recent evidence that the sickle cell trait may also carry immunity to malaria (16) provides a possible explanation for the "very thorny problem in gene dynamics" of the high incidence among Negroes of hereditary anemias (17). This cross-fertilization of genetics and biochemistry provides a penetrating tool for the investigation of some of the basic problems at the heart of evolutionary considerations.

A third area of biochemical inquiry, which this time deals with the relationship of the metabolism of various parts of the *same* organism, is that of *BIOCHEMICAL EMBRYOLOGY*. Work in this field is aimed at unraveling the mechanisms by which individual cells achieve metabolic individuality, and thus produce tissues and organs of specialized form and function. Joseph Needham's encyclopedic works (18) have merely set the stage for modern expansion in this field. The Proceedings of a Symposium on the Biological and Structural Basis of Morphogenesis have recently been published as a supplement to a Dutch journal (19).

In spite of rapid developments in each of these areas, one gets the impression from reading even the most current literature that only the groundwork has been laid; and that the complexity of living things revealed by such studies leaves us face to face with more perplexing problems than the ones we started out to solve. Comparative biochemistry has shown, for example, that even the "simplest" forms of life have extremely complex metabolic patterns, and that in spite of early popular enthusiasm about viruses, there exists a tremendous gap between the living and the non-living. Biochemical genetics leaves us puzzled before the combination of stability and variability which the genic apparatus must possess. Biochemical embryology staggers us with the concept of the entire metabolic potentiality of an organism, packed into a single fertilized ovum. Dr. Sam Granick of the Rockefeller Institute for Medical Research, after discussing the steps involved in the synthesis of hemoglobin in the animal body at a conference on protein metabolism a year ago, added this comment:

"From the little that we know and the much more that we have hypothesized, we have obtained a glimpse into a highly intricate pattern of great exactness. At the same time, one conclusion is forced upon us. It is that this hypothetical slime-stuff which we call protoplasm must be endowed with such infinitely complicated systems and such delicate interrelations that only by the most distant stretch of the imagination could it possibly be postulated to exist at all!" (20)

It is in revealing this "complexity," or "delicateness," or "intricacy," or "orderedness," or "low

entropy" of the living stuff, that biochemistry has its influence on evolutionary theory. For, the more complex we discover life to be, the more difficult it is to account for it. If we assume that the first living things were far simpler than those we study today, the problem of increasing complexity, coupled with stability, confronts us. If on the other hand we feel that the primitive living stuff had much in common with life today, the problem of its origin from inanimate matter becomes even more staggering. There is probably a tendency in this latter direction of thought today (21, 21a), that is, to consider that there was a tremendous accumulation of free energy in the form of organic compounds at the time of origin of primeval life. There has been considerable enthusiasm among those who hold this view over the results of an experiment reported last year (22), in which some of the naturally occurring amino acids were produced by the continuous cycling of a mixture of methane, ammonia, hydrogen, and water vapor through a high-voltage arc (21a).

However, the amount of enthusiasm over a scientific discovery is not necessarily a measure of its significance. In 1907, when Emil Fischer succeeded in combining eighteen amino acid molecules in a chemically controlled manner to form a peptide of molecular weight greater than 1,200, excited reporters announced to the world that the "greatest riddle of life" had been solved (23). Fischer knew and emphasized, however, that in spite of the importance of his accomplishment, we were still a long way off from synthesizing even the simplest of naturally occurring proteins.

As a matter of fact, we are considerably closer to that goal today. A method of separating protein hydrolysis products by ion exchange chromatography, carefully worked out by Stein and Moore (24), today allows us to determine quantitatively the amino acid composition of a protein using a sample weighing only three milligrams. By using a combination of "end group analysis" (in which a terminal amino acid is tagged chemically while still attached to the amino acid chain, and then identified later after splitting the peptide bonds in the chain) and various methods of "partial hydrolysis" (in which peptides of varying sizes are produced and separated chromatographically), Fred Sanger of Cambridge has worked out the complete sequence of amino acid residues in insulin, a protein of molecular weight 12,000 (25). Methods are now available (25, 26), and are continuously being perfected (27), for the "stepwise degradation" of proteins and protein fragments; that is, for removing one amino acid at a time from the end of the chain, identifying it, and then repeating the process on down the peptide chain. These modern methods of organic biochemistry, coupled with the penetrating methods of physical chemistry, such as X-ray diffraction (28), have for the first time given us an accurate, though still incomplete, picture of protein structure.

Synthetic methods have also been developing rapidly and duVigneaud and his coworkers last year were able to announce the synthesis of the octapeptide hormone of the posterior pituitary, ocytocin, almost simultaneously with the announcement of its structure (29). The controlled synthesis of polypeptides of specific amino acid sequence is still a laborious and sometimes tedious job, but the synthesis of such a polypeptide as ACTH or of a protein such as insulin is certainly not out of the question in the near future.

The protein structures which intrigue us most, however, are those with which is associated the ability to catalyze specific chemical reactions, *i.e.*, the enzymes. Our knowledge of these structures is very meager at the present time. For one thing, the enzymes are generally of considerably higher molecular weights than that of insulin; they are rather easily denatured or inactivated, and are difficult to obtain as absolutely homogenous substances. A total of approximately 72 enzymes have been *crystallized* to date (30), but crystallinity does not necessarily imply homogeneity in the case of complex molecules such as proteins. Where "co-enzymes," molecules much smaller and less complex than proteins, are involved as the active sites on the enzyme molecules, it has been generally possible to propose a step-wise mechanism for the enzymatic reaction, based on the chemical structure of the coenzyme; certain similarities in the pattern of such reactions have emerged (31). But the real puzzlers are the enzymes which apparently contain no prosthetic group apart from their specific amino acid configuration, and here our understanding must await the elucidation of the details of their fine structure. This information should accumulate in the near future.

The enzymatic mechanisms which are of the greatest interest to us here today are those involved in the biosynthesis of proteins, and specifically, the biosynthesis of the enzymes themselves. For it is the ability of the organism to synthesize enzymes which must be the essence of its ability to reproduce itself. Forming the peptide bonds in a protein is an "endergonic" process; *i.e.*, it requires free energy. This free energy must come from "exergonic," or energy-yielding, processes, and one of the most absorbing problems of biochemistry today is finding out how these processes are coupled.

Most of these investigations involve "model" systems, much simpler than anything that goes on inside the cell. One of these is the "transpeptidation" system of J. S. Fruton and others, with which I have had some slight experience. In such a system, the amount of energy necessary is cut down by using starting materials already containing amide bonds and allowing the enzyme to catalyze a "transamidation" rather than

the *de novo* formation of an amide bond; the energy is supplied by the insolubility of the polypeptide product, which in this case comes out of solution, driving the reaction to completion. With such a system it was possible to produce a peptide chain containing eight amino acid residues, starting from glycyl-L-phenylalanine amide and using a purified protease from beef spleen as the enzyme (32). One difficulty in the concept that protein biosynthesis is merely a "reversal of proteolysis" catalyzed by proteases is the high degree of specificity of the known proteases; in other words, there would almost have to be a separate enzyme for each bond in the protein synthesized, which seems unlikely. Fox at Iowa State has shown that the substrate itself may have an effect on the choice of possible synthetic reactions catalyzed by a protease (33), and has thus partially overcome this difficulty.

A concept of protein biosynthesis perhaps more favored than the "reversal of proteolysis" idea is what may be called the "template," or "zipper' theory. According to this theory, the amino acids line up in the proper order along a "template," and a reaction occurs by which the peptide bonds are all formed essentially simultaneously. Lipmann, using the synthesis of pantoyl-β-alanine as a model (34), has suggested a possible mechanism for the reaction in which the peptide bonds are formed, utilizing indirectly the high energy bonds of ATP (31). A comprehensive review of various lines of investigation in the fields of peptide bond formation has been provided recently by Borsook (35).

* * *

To sum up, just where do we stand in our efforts to understand what actually goes on in living things? It is perhaps appropriate to repeat here Krebs' words of caution about the interpretation of *in vitro* experiments:

> "Physiologically most intermediates exist only transitorily, *i.e.,* in minute quantities. Moreover, they occur only intracellulary. These circumstances preclude their identification under 'physiological' conditions. To investigate intermediary metabolism, the concentration of the metabolite must be artificially raised, or poisons must be added, and/or the tissue has to be removed from its normal site and to be perfused, or sliced, or minced, or extracted. The statement, therefore, that the evidence is valid for living tissues under 'physiological' conditions always implies the assumption that the reactions occur under conditions different from those of the experiment. As far as one can see, this state of affairs is bound to persist, and for this reason the theory of intermediary reaction mechanism is bound always to remain a theory.
>
> In short, while it can be proved that a tissue or a cell has the ability to perform certain reactions, the 'physiological' occurrence of the reactions must remain an assumption. If one agrees with Hopkins' contention that, in general, a tissue is able to deal only with what is customary to it, the demonstration of an intermediary reaction under experimental conditions can be regarded as powerful evidence, though not a final proof, that the reaction is part of the normal metabolism of the tissue." (36).

But assuming that our experiments *do* tell us what is actually going on inside the cell, are we now in a better position to explain the origin and variations of this living stuff? Personally, I think we are not. Our concept of protoplasm is no longer the naive one of Darwin's day. We see in the living cell dozens, or hundreds, or even thousands of intricate protein molecules, delicately arranged, yet in a dynamic equilibrium in which this extremely low level of entropy is maintained by the expenditure of free energy in metabolic reactions (37). Some of these reactions we say we understand; yet we are completely unable to account for the existence of the system which makes them possible.

In short, whether we worship the creature or the Creator, there is a great deal to cause us to be reverent. And I, personally, am convinced that those of us who worship Almighty God will have a greater influence on those who worship themselves or any other portion of His creation, if we ourselves take the lead in delving into the mysteries of life with the objectivity of true scientists and the reverence of true Christians. At least that is what I hope to do.

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New Members

Merrill J. Alexander, graduate in medicine from the University of Illinois, is now an intermediate resident in general surgery at the Veterans Administration Hospital, San Francisco, California.

David F. Busby, M.D., 711 North Lotus, Chicago, Illinois, is a general practitioner in the Chicago area. He also is co-director of the Health Service, Moody Bible Institute, and an associate in the Chicago Missionary Medical Office.

Jay E. Folkert is an associate professor of mathematics at Hope College, Holland, Michigan, where he did his undergraduate work. He plans to complete work for his Ph.D. in mathematics soon, from Michigan State College.

Morris E. Fuller is working with Radio Station HCJB, Quito, Ecuador, as a physician in their medical department. He received his M.D. from Syracuse University Medical School.

Stanley R. Hillis, M.D., 1113 South 5th Street, Temple, Texas, works at the Scott and White Hospital. Dr. Hillis plans to take specialty work in Radiology with the hope of teaching in some foreign medical school and working as a lay missionary.

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*The Biblical Psychology of Conviction**

PHILIP MARQUART, M. D.

Is there any human nature involved in conviction, any of personal experience or behavior? If so, there is psychology involved. However, there are those who insist that conviction is solely the work of the Holy Spirit and that there are no natural elements in it whatever. Thus we arrive at one of these problems of the meanings of things, which are involved in what is commonly known as semantics. What do we mean by *Conviction?*

There are two differing entities that are commonly called Conviction, in Christian circles. The first is the reproval of a man by the Holy Spirit. Since the word "reprove" is used in the Authorized version (John 16: 8-11) we will continue to use "reproval" for this first category of meaning. This reproval, we accept on the authority of the Word of God, but since He works thus in the midst of His own natural creation, we cannot *observe* His working through our sense perception, nor study it by means of the scientific method. We can, however, find convincing clues here and there that He is working and that man does not stand alone.

The second category may be referred to as the State of Conviction. This is the mental, emotional, physiological and social condition into which a convicted person is thrown as the result of the reproval by the Holy Spirit. Such a State of Conviction comes to our notice particularly if it is prolonged, due to the resistance of the person involved. It is not God's will that conviction be prolonged "but that all should come to repentance" (II Pet. 3: 9), which is the next step after conviction, if such step is chosen. Serious psychological difficulty may supervene, if reproval is resisted.

We need here to sharpen some contrasts and to set up some definitions. There is a tendency to confuse conviction and repentance. The State of Conviction is the human response to the reproving work of the Holy Spirit. Repentance, on the other hand, is a turning away from natural sin and a turning back to God, a turning which is not natural, but which is empowered by the Holy Spirit.

Since the word "convict" is used but once in the Authorized Version, we need to go back to the Greek word "elangcho" for the full meaning of conviction. This verb is translated as to "reprove", "convict", "convince" etc. Certain passages help to round out our appreciation of the concept. "All things that are reproved are made manifest by the Light." (Eph. 5: 13). Reproof is given for correction when we forsake the Way. (Prov. 15: 10) Whoever receives the reproofs of life is wise. (Prov. 15: 31, 32) The child of God is advised to turn (repent) at God's reproof and then the fulness of the Spirit is promised. (Prov. 1: 23) There is an intellectual side of conviction. "Which of you (Pharisees) convinceth Me of sin?" (John 8: 46) In Jude 15, we are told that the time will come when the Lord will convince all that are ungodly of their ungodly deeds. In Heb. 12: 7-9, we find that chastening is a form of reproof and it should not be disliked by the believer. The words of Christ convicted the Pharisees through their own conscience (John 8: 9) thus showing that God can use a natural mental function in His reproval. The one who does evil avoids the Light, lest his deeds be reproved. (John 3: 20). The scorner is the one who does not like to be reproved. (Prov. 15: 12)

Rebuke is a stronger word than reproof, although there are places where the concept of "reprove" has been translated as rebuke. Rebuke is given by the Spirit for iniquity or lawlessness. (II Pet. 2: 16). It does not necessarily involve correction, but merely the fixing of a serious charge. Jesus rebuked the devil (Mat. 17: 18) and unclean spirits are to be rebuked. (Mark 9: 35) The Day of Jacob's Trouble is called a Day of Rebuke in II Kings 10: 3. Jesus rebuked inanimate nature in the form of wind at Mark 4: 39. Men rebuke each other in various Scripture passages and elders are given authority to rebuke rebellious Christians. However, it would seem that rebuke is never to be used lightly, since the archangel in Jude 9 neglects to rebuke Satan, who was originally his equal, but said "The Lord rebuke thee". A rebuke may be viewed as a reproof in which the penalty is so heavy that correction in this life is impossible. It is for the brutish and for those who resist and rebel against reproval. The one who hates reproof shall die. (Prov. 12: 1). When a man hardens his neck against it, he will be destroyed. (Prov. 29: 11) A believer who thus rebels may even sin a sin unto death, not for his correction, but in order to stop his sinning.

The concept of "reproach" may be viewed as rebuke on a social plane. God does not seem to reproach any of his creatures, for reproach is a more serious blame than rebuke. However, He said that He gave Israel over to reproach, (Isa. 43: 28) but the reproach was to come from people. Job complained that he had been reproached ten times. (Job 19:2). We hear of the reproach of men (Ps. 22: 6; Isa. 51:7), re-

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proach by the enemies is mentioned at Ps. 102: 8; Ps. 31: 11, while a reproach to the neighbors is found at Ps. 44:34. "Sin is a reproach to any people" (Prov. 14: 34) takes on new meaning in the light of these passages. As a Man, Christ was reproached and even cursed by other men. In Hebrews and I Peter, believers are told that they must expect to bear likewise the reproach of Christ.

It is very necessary to clear up the confusion about the concept of "accusation". Accusation is a strong word, since it is not corrective but rather condemnatory. A railing accusation amounts almost to cursing. God Himself does not accuse sinners (John 8: 11). Jesus did not even accuse the Pharisees (John 5: 45) and even at the judgment, it will be the Law of Moses that will accuse them. Even angels do not bring railing accusation against Satan. (Jude 9) Accusing people is really Satan's work and his particular target is the child of God. He accuses the brethren day and night. (Rev. 12: 10). His accusation is not redemptive, but is an attempt to bring them into his own lost estate. The devil's accusation is an evil parody on the work of the Holy Spirit. Even Jesus was accused, as we learn in Mat. 27: 37, and here we see that an accusation was also a legal term, used against the condemned criminal. An accusation may involve nothing but imagined or trumped up offenses and such an accusation may bring neither response nor assent to the accused. When men accuse others they are doing the work of Satan. Strangely enough, it is our inherent, God-given mental function of conscience that is used for an accusation. Rom. 2: 15 tells us that the conscience either accuses or excuses, not only others, but ourselves. Thus we see that Satan may use the conscience to accuse us of sin. But God may use the conscience too, in order to bring His reproof. (John 8: 9). The mental consequence of Satan's accusation may be some form of fear or anxiety, not the fear of God, but rather the fear of outward circumstances. Do these accusations and anxieties enter into the State of Conviction? If so, then Satan might be playing a part in it. But let us change for a moment from Bible terms to the psychological pattern of our day. Is there anything destructive involved in the State of Conviction? If so, then the Destroyer is doubtless present.

What about the fears and anxieties that may accompany the State of Conviction? They may be classified as follows:

I. Basic Anxiety: the general restlessness which all men manifest at all times.

II. Manifest Anxieties: in which the fear is conscious and the object may be known.

1. The fear of things and of outward situations, which may commonly follow guilt situations.
2. The fear of God. While this fear is not mentioned in modern psychology, it follows the pattern of the other manifest anxieties. However, in most cases, the fear of God is not a fear at all, but rather a reverential trust of Him. Such a "fear" is clearly redemptive and corrective, not harmful nor destructive. However, there are instances in which the fear of God is downright anxiety and panic. Adam's panic in the Garden is an instance. All of these anxieties may be present in the State of Conviction, even as Adam's in the first State of Conviction.

There are also two kinds of sorrow and either one may be present in the State of Conviction. The first is godly sorrow (II Cor. 7: 9, 10) which is the characteristic consequence of the reproval of the Holy Spirit. The second is the sorrow of the world that bringeth death. This latter is remorse and, as suggested, it may bring suicide. Judas is the Scriptural example.

We are here considering the psychology involved in the State of Conviction. In considering the participants, let us first mention the convicted person. He is not a robot, being forced into Salvation, but the outcome of conviction depends upon his own free choice, however much this choice is a part of God's own sovereignty. We will not here enter into the theological problem about God's sovereignty.

The Second Person involved in Conviction is the Lord the Spirit. All things are done under His supervision, whether it be mediated through natural mechanisms or not.

There is a destructive factor working in all events where men are being led to the Lord. Read the sixteenth Chapter of Matthew and note how quickly the destroyer goes into action after Peter makes his own famous profession. Jonathan Edwards recognized this destructive factor so clearly that he gave its presence as one of the sure signs of true revival. Perhaps a hint of this destructive factor is given at the end of that key passage on conviction, John 16: 8-11. God permits Satan's work, we know not why, but He limits it, uses it for his own purposes, and gives Rom. 8: 28 to assure the believer.

What are the things that happen in the convicted personality? The State of Conviction is "not a universal phenomenon" in human nature. It may occur and recur in the life of a Christian. It must occur before and it may occur after conversion. The Holy Spirit works through the agency of the Word, which must be heard by the person who is to be convicted. The person realizes consciously the manifest presence of God. This is an unpleasant experience. "Woe is me" mourned Isaiah. He felt undone (Isa. 6:5). In other words, he feels not only insecure in his environment, but inadequate in himself. The same passage shows that he also recognizes his sin as a whole, and

not as an isolated act. In Acts 2:37, the first Christian converts were "pricked in their heart." This sounds as though the conscience were used to mediate conviction, as is also suggested in Rom. 9:1. The convicted person tends deeply to blame the self as Job did in Job 42:6.

The State of Conviction is an individual experience. A sinner nearby may not be convicted at all. It was the righteous Job who experienced conviction and not his would-be friends. Conviction involves the intellect, the emotions, the will, the consciousness, and in case of resistance, the reproval may be repressed into the Unconscious and cause trouble there. This may explain what happened in people who experienced the "jerks" in the Cumberland Revival. The choice of the convicted person may be expressed in two alternatives, either failure to turn at His reproof or turning to God, which terminates the State of Conviction through repentance.

The convicted man who refuses to face God with his sin is thus made susceptible to all kinds of destructive influence. This may be viewed as a form of intra-aggression: man working against his own best welfare and unconsciously bringing punishment upon himself. The destructive forces within the personality involve the emergency emotions of fear and anger. Some form of fear is the primary of the two and conviction seems commonly to begin with fear. One may wonder whether this initial fear and anxiety may be occasioned by Satan's accusation, "for God hath not given us the spirit of fear" and we have seen how the effective work of reproval in conviction brings "godly sorrow" rather than fear. Wherever the fear came from, we know that God is able to use it effectively in bringing souls to Himself.

If the convicted person runs away from God's reproof, he may encounter a number of maladjustments. Since it is natural to avoid the reproof, the State of Conviction commonly begins with anxiety which is guilt-tinged. At any point he may return to normal by seeking Christ. However if anxiety is prolonged there may occur a number of tension-reducing devices, which may be in the nature of adjustment mechanisms, neurosis or psychoses. The person thus has less tension, but his adjustment is inadequate. The type of maladjustment he acquires depends upon his underlying personality. Extroverts tend to acquire one form and introverts another. The secular profession recognizes these sequences, but it says that the original anxiety arises from frustration, due to the thwarting of inner urges. That the frustration may be ethical and spiritual has not occurred to them.

The popular belief that "religion will drive you crazy" has its basis in these unfavorable results of man's resistance to reproval of God. However, the people who acquire such maladjustments have merely been convicted and have never come through to repentance or conversion. A true experience with Christ does not maladjust.

The one who is ordained to Salvation on repentance, turns resolutely and faces Christ with his guilt. When he does so, the fear element melts away and is replaced with godly sorrow with its deep distress. It is at this point that the person needs spiritual and Scriptural help, so that the joy of Salvation returns. Frequently one encounters two opposite types of trouble here: the one who refuses to forgive himself for what God has forgiven, and the one who denies all guilt and projects it upon others.

In the other days, a man named M. was admitted to St. Joseph's Hospital in the wee small hours of a Monday morning. There were a number of signs that the inner organs of his body were not working rightly, but his complaints far outweighed his pathology. The doctors couldn't pin an exact diagnosis upon him. So they gave him phenobarbital, a nerve quieter, and looked into their books to figure it out. If they had but noticed, all his trouble could have been summed up as a disturbance of the sympathetic nervous system, an event which could have been the resullt of an emotional upset. These things were known at that time, but they were not accepted by the average practicing physician. To them, the symptoms were either physical or they were all imagination. In fact, the new word "psychosomatic" was not even coined until the following year.

In the meantime, a Bible-believing pastor came to me and thus I learned the cause. Mr. M. had listened to his Gospel message that Sunday evening before his midnight ride in the ambulance. He had left the church much convicted, but still resisting all entreaties to accept Christ. The preacher had the theory that Mr. M's disease was nothing but the physical effects of the inward disturbance of conviction. I agreed that his theory could be correct. He asked about the ethics of going to hospital to minister to his parishioner his spiritual need. He was told that he had a right to visit a parishioner in a hospital, when he knew of his spiritual need. The pastor went to the hospital, led the patient to Christ, and his symptoms promptly disappeared. His physicians never knew what happened. One of them complained, "It beats me how you can give a patient phenobarbital and he gets well before you can diagnose him."

A student in a missionary training school was struggling against the lust of the flesh, although he seemed to be deeply spiritual. Suddenly he committed an act of exhibitionism, of which he had thought himself incapable. Sudden fear swept over him, he knew enough of Christian things to turn immediately to the Lord in repentance, and then made restitution to the injured party. Within minutes after his sin (which was also a crime that could carry a jail sentence) he was seeking the Lord more sincerely than ever before

in his life. His fear left him and he was only filled with deep distress and godly sorrow that he should have thus offended the Lord. The distress could even be traced in his facial expression. All he needed then was the spiritual help to be found in I John 1: 9 and related texts. This human help was given in the hope that the Lord the Spirit would use His written Word to guide him. Indeed that is what actually happened, and before long a grateful smile curled over his lips and the joy of Salvation was restored. From that moment he began praising the Lord and living on a higher plane of Christian experience than ever before. Ever since then the testimony, not only of his words but of his life has been supreme. Fortunately, and by the Lord's own mercy, there were only three people who knew of his deed, and they are marveling over the power that has come into his life. The Word describes what happened to him in Prov. 1: 23:

> "Turn you at My reproof: behold, I will pour out My Spirit unto you, I will make known My words unto you."

Thus we see that there is such an entity as the State of Conviction, which is produced in the personalities of men who are reproved by the Holy Spirit. This State of Conviction is characterized by an inner disturbance of a psychologic nature and it may lead to serious maladjustment in the case of those who resist His reproof. Prolonged conviction is occasioned by resisting Him. This is neither a normal state, nor is it the will of God, since He wishes that all should be brought to repentance, but He forces repentance upon no one. Not all who resist are brought into a state of psychosis, but they cannot then be spiritually normal, even though they be adjusted to their environment in the secular sense. Repentance or conversion bring joy, not psychosis nor any maladjustment.

Godly sorrow is the open door from conviction into repentance, but full repentance has not arrived until the convicted one has turned to God from sin.

ANTHROPOLOGY

by

James O. Buswell, III, M.A.

I am happy to introduce as guest columnist for this issue William A. Smalley who has recently returned from nearly five years work in Indochina under the Christian and Missionary Alliance. Mr. Smalley was engaged in a study of the Sre dialect of a people in the interior called Moe 'savage' by the Vietnamese. He is now working with Dr. Eugene Nida in the Translations Department of the American Bible Society at their New York office, and teaching anthropology and linguistics at Shelton College in Ringwood, New Jersey.

ANTHROPOLOGY IN THE SERVICE OF CHRISTIAN MISSIONS

by William A. Smalley

In the earlier days of the anthropological study of the world's many peoples and cultures, certain missionary descriptions of local groups played an important part. Missionaries were some of the very few individuals who had been out of the closed orbit of the West. But although the 19th century anthropologists sought out the missionary accounts, most missionaries knew nothing of anthropologists, and cared less. A whole system of anthropological thought developed about people and culture, including such important missionary questions as religion, culture change, the effect of foreign influence on native life, etc. Except as small parts of the anthropological viewpoint entered the general stream of western thought it had no influence on the missionary.

I have, with Marie Fetzer, touched on some of these important issues of missionary anthropology in the ASA symposium, *Modern Science and Christian Faith.* More may be found in a valuable little journal, *Practical Anthropology,* published by Robert Taylor, 2330-3 Patterson Dr., Eugene, Oregon (One dollar for six issues). The fullest treatment of the subject is *Customs and Cultures,* by Eugene A. Nida (Harper and Bros., N. Y., 1954). The present column will not deal with any of these questions, but will rather list some of the ways in which applied anthropology is beginning to reach Christian missions.

Several schools now offer anthropology with the missionary particularly in mind. On the graduate level the Kennedy School of Missions (Hartford, Conn.) offers extensive work in the field. Columbia Bible College also has a program. On the undergraduate level such liberal arts colleges as Wheaton and such Bible colleges as Nyack, among others, offer a modest selection of courses, Wheaton offering a major in the field.

Descriptive linguistics, a specialized branch of anthropology having to do with the scientific analysis of languages, is by far the most fully handled in missionary training due to the pioneer work and the several summer schools of the Summer Institute of Linguistics, affiliated with the Wycliffe Bible Translators. Hundreds of "Wycliffe" graduates, having taken a summer or two of linguistics, and having thereby been "exposed" to that and other aspects of missionary anthropology, are found in scores of missions around the world. Often, of course, the short summer "exposure" doesn't "take", but many a missionary looks back to his summer of linguistics as a most important eye-opener, and in some cases of the beginning of an entirely undreamed-of range of missionary service.

Another type of institution which tries to give the prospective missionary a modicum of anthropological orientation is the Toronto Institute of Linguistics. This is a month-long session of intensive work in the techniques of language learning. Its purpose is different from that of Wycliffe, which trains for the analysis

of languages. At Toronto the emphasis is on some of the skills for learning a new language in the field. Missionaries going to unwritten and unanalyzed languages need Wycliffe. Others need Toronto, at least.

Most of the attempts to apply anthropological ideas to mission problems are modestly performed by modest missionaries who seek a more valuable ministry in their busy area of service. There have been, however, rare attempts by Christian, professionally trained anthropologists to "apply" anthropology to local mission problems. An outstanding recent example has been the work of Dr. William Reyburn and his wife (Marie Fetzer Reyburn) in South America. Their approach is essentially one of working for an understanding of the two cultures represented—the native culture, and the culture of the missionaries (i.e., their particular Christian emphasis). They then try to lead the missionaries to an understanding of some of the reasons for their difficulties in this culture-difference. A report on their intensely valuable project among the Toba of Argentina will be published shortly by the Mennonite Publishing house. The report is a brilliant presentation of the anthropological viewpoint in relation to mission problems as it deals with the concrete Toba situation.

The individual who is probably doing the most to make missionaries aware of anthropological problems inherent in their work, and of the importance of an anthropological orientation in understanding people, is Dr. Eugene A. Nida. In his capacity as Secretary for Translations of the American Bible Society, his world-wide travels have led him to hundreds of mission stations where he has helped the missionary study the anthropological problems (linguistic and cultural) basic to the translation of the Scriptures. His several books, ranging from highly technical linguistic texts to highly readable popularizations, all propagate the same viewpoint.

All of these developments, important as they are, mark only a beginning. The knowledge which anthropology offers about mankind has not penetrated very far. Race, language, and culture, three focal points of missions and of anthropology alike, have not yet been a meeting ground for these fields to any important degree. Of course there are perceptive missionaries who are so without any anthropological background, but so often the missionary picture is marred by the grossness of the missionary to whom everything not American is unworthy, if not revolting, and to whom the church must reflect America even before it reflects Christ. Missionaries guilty of such attitudes are usually not perceptive enough to realize the fact. I regret to say that some fundamentalists tend to be the worst offenders.

It was not the fault of the missionary of the last generation that he did not have training in the anthropological view of man and culture. Such a training was not readily available to him. But for the missionary of today, and for his sending board, it is a grave responsibility if he does not take advantage of the increasing opportunity he has to learn about mankind in its fascinating varieties of cultural life, and to come to his missionary work with the wider perspective known as the "cross-cultural viewpoint".

The ASA could do little of more importance to the cause of Jesus Christ than to help foster among missionaries, in missionary training programs, and in mission boards, a scientific view of the mankind Christ came to save.

May 2, 1955

BIOLOGY

by

Irving W. Knobloch, Ph.D.

In the four previous articles we have summed up some of the current ideas on species formation in nature. We have used the term "speciation" to cover the effects of the processes of point mutation, chromosome rearrangement, polyploidy and hybridization since this definition is allowed by some authorities. These processes result in new genotypes and, undoubtedly, in new phenotypes. If new phenotypes arise we can say that the number of "species" has been added to and the diversification of organisms increased. The change of a species or the formation of new species can be said to typify "evolution".

We have hitherto evaded a definition of the latter term. It is in the same nebulous category as "species" or "natural selection". It might be best therefore to briefly outline three of the *many* possible positions assumed by various groups in regard to this subject. The first, commonly called the "Fixity Position" assumes that the approximately million and a half species now existing in the world have come down unchanged from the original creation. The advocates of this view are opposed to any idea of change or evolution. Since new species can be formed almost at will by the plant breeders and since cross-breeding occurs fairly freely in nature, it is difficult to reconcile this view with the facts (and hybrids are sometimes fertile). Other forms of speciation have also been mentioned above.

A second point of view on evolution, taken by most biologists, assumes a development or unfolding of organic life starting with relatively unspecialized protoplasm. This idea is an old one and goes back to the Greeks (although their ideas were quite crude by comparison with our ideas). Scientists believe this doctrine on the basis of what they consider to be facts and a considerable number of laymen accept it on

faith (in the scientists). The evidences given for this belief come from the fields of morphology, embryology, serology, classification, paleontology and paleobotany. Since the arguments from these fields are well known to readers of this magazine they will not be quoted here. In fairness to this "phylogenetic" theory of organic evolution it must be said that many of the evidences force us to the belief that organisms have changed. The whale and boa constrictor have probably lost limbs they once had (see Genesis 3:14 in reference to the snake). The ostrich was probably not created with defective wings and probably the horse did evolve from a small horse (*Eohippus*) to the modern *Equus*. Many other examples could be mentioned.

However none of these evidences is *proof* of "phylogenetic" evolution. One must make a herculean mental assumption that the type of evolution mentioned above (whale, boa, horse, etc.) also applies on a much larger scale and carries back to an ameba-like ancestor. This requires faith of the highest order. To bridge this gap we are referred to the fossil record which is said to show this gradual transition. Many paleontologists feel that the fossil record is fairly complete and that the time is ripe for making great generalizations. History, by the way, is full of illustrations of people who acted upon insufficient data and consequently made erroneous conclusions. Relatively speaking, modern science is of recent origin and our present dogmas will probably be quite outmoded in a hundred years or less. This is the lesson of the history of science. I will probably be disputed on this point but it is my sincere belief that although the fossil record may be complete in regard to the number of species capable of being fossilized, it is probably very incomplete in respect to the number of species actually existing at any one time. Probably most people know that the fossilization of soft-bodied animals or even those with bones is a fairly *rare* event. These observations should make us pause. There are several other peculiarities about the fossil record which a scientist will consider carefully before making the assumption spoken of earlier. Some of these are the astounding discontinuities in the rock, the lack of any (or as many) intermediate forms as predicated and the incredibly complex forms of life (e.g. trilobites) in the earliest fossiliferous strata. It may be that time will bear out the contentions of the phylogenetic evolutionists but the time to take a dogmatic position is probably not now. The facts speak for themselves but the proof of the assumption, presumably based on the facts, cannot be verified as yet. It is my personal belief that ultimate proof of the theory outlined above will have severe consequences for those holding to the fundamental beliefs of the Christian faith.

A third way of looking at the question of evolution entails a limitation of its scope to observable fact. This viewpoint admits of genotypic and phenotypic diversification as far as the evidence leads. It replaces the phylogenetic tree concept with the more realistic one of a bundle of sticks each lying more or less parallel to each other. It allows for evolution from certain created types; how many and of what kind no one knows. If one assumes that many soft-bodied and boned animals lived in Pre-Cambrian and Cambrian times, the position of people upholding this view becomes plausible. Furthermore if one remembers that the rates of evolution have been much faster in certain periods than they are today, the objection of the time factor can be ignored. This is not to say that we must agree with the erroneous calculations of the Arch Bishop of Ussher as to the age of the earth. Certainly the earth is old and life on the earth ancient. I do not know what to call this type of evolution but let us tentatively contrast it with the other type by ascribing the name "intraphyletic" evolution to it. The main flaw in this theory is that it requires faith enough to believe in a creation of some plants and animals. Science itself, however, demands faith of its devotees—faith in the reality of the atomic structure, faith in the order of the universe, faith in cause and effect, faith in uniformitarianism and in many other fields.

Since some people may accuse me of hedging, I will be frank to say that the last two positions appear to be tenable, but personally I think that the third possibility is more in accord with the facts, *as we know them today.*

The purpose of this article has been to explain what I meant by the terms "speciation" and "evolution". I fear that I have omitted many things that should be said but I trust that I have answered, in a measure, most of the queries that have been directed my way.

East Lansing, Michigan

PHILOSOPHY

by

Robert D. Knudsen, Th.M.

Of all the courses I have organized, I have had the greatest difficulty with Introduction to Philosophy, a difficulty occasioned not merely by the complexity of the subject and the impossibility of squeezing all the needed material into the confines of a three unit course, but also by the scarcity until recently of Christian textbooks in the field. Part of the dilemma of teaching this course is to balance 1) a first hand acquaintance with the original sources, 2) a systematic acquaintance with the various terms and positions, and 3) a vigorous Christian interpretation of the subject matter. I have found the varying demands

so time-consuming that something has to give way somewhere.

Fortunately the situation has been eased by three recent publications: Clark, Gordon H., *A Christian View of Men and Things* (Grand Rapids: Eerdmans, 1952); Spier, J. M., *An Introduction to Christian Philosophy* (Philadelphia: Presbyterian and Reformed Publishing Co., 1954); and Young, Warren C., *A Christian Approach to Philosophy* (Wheaton: Van Kampen Press, 1954).

The method I have used in teaching is to give a firsthand acquaintance with the original sources. Instead of using a standard text presenting a single non-Christian position, I took selections from Bronstein, D. J., *et. al., Basic Problems of Philosophy* (New York: Prentice-Hall, 1947), a book of readings arranged under various heads, e.g., Ethics, Politics and History, Science. Parenthetically, there are three other books of readings which deserve attention: Melden, I. A., *Ethical Theories* (New York: Prentice-Hall, 1950); Wiener, P. P., *Readings in the Philosophy of Science* (New York: Charles Scribner's Sons, 1953; and Bronstein, D. J. and H. M. Schulweis, *Approaches to the Philosophy of Religion* (New York: Prentice-Hall, 1954). While using *Basic Problems of Philosophy* I supplied a Christian interpretation on the side. Though I differ somewhat in viewpoint, I gave the student additional Christian material by assigning Clark's text as collateral reading. I found that Clark and Bronstein could easily be synchronized.

Reading and discussing original sources stimulated student discussion and interest. I believe the interest was further aroused by the fact that it was easy to arrange the material, as Dr. Clark has done, in order from the most obvious and pressing to the least obvious and farthest removed. I found, however, that having the students read a number of sources made it difficult for them to synthesize. They had diffffficulty seeing the woods for the trees.

Spier's *An Introduction to Christian Philosophy* sets forth in a popular way the new Christian philosophy being developed at the Free University of Amsterdam, Holland. This is the Philosophy of the Idea of Law, more recently dubbed the Philosophy of the Cosmonomic Idea, at the suggestion of H. De Jongste of Rotterdam. I have found this new philosophy of great interest, and I have been stimulated by it tremendously. Mr. Spier's introduction to it has met with considerable success, as is seen from the fact that the translation is from the fourth edition. Its great lack as a textbook, however, is that it concentrates entirely on giving a popular survey of the new philosophy, without presenting a survey of various systems or first hand acquaintance with original sources.

The last book, that of Dr. Young, is one which has real promise for use as a text. I believe every Christian instructor in philosophy should get it and consider its adoption. It is generally patterned after the successful text by E. S. Brightman, *An Introduction to Philosophy* (New York: Henry Holt and Co., 1952), which accounts both for some of its virtues and faults. Among its virtues are the same kind of short but concise surveys of philosophical systems which make Brightman's book a good text. I would like to have seen Dr. Young depart from Brightman more definitely, however. For example, he does not present a distinctively Christian epistemology, but he takes over bodily the ways of knowing as presented by Brightman, who seems to me to be syncretistic in this area.

One of the outstanding things about Dr. Young's book is that he is trying to reach for a distinctively Christian approach. Where he should be strongest he often shows weakness, falling back on positions by faith and not presenting a well-worked-out theoretical justification; but he takes into account the more recent Christian discussion, which is indicated by the fact that he is moving in the direction that thought and man's whole life are fundamentally religiously conditioned. I see this position behind statements such as this: "In other words man cannot get rid of theism, and the only theism with which he can ultimately rest is that of revelation itself" (Young, *op. cit.*, pp. 211-212).

That this is his position is more clearly brought out when he objects to what he calls the coherence approach of Dr. E. J. Carnell and Dr. Gordon H. Clark. Both rest the argument for Christianity on the fact that it is the most coherent position. This method, Dr. Young says, commits the "coherence fallacy" (*Ibid.* 221, note 1). In discussing Carnell he goes so far as to say, "Christianity would appear as most incoherent to one who rejects special revelation" (*Ibid.*). He also states, 'Instead of saying . . . . 'Christianity is a coherent religion', he (Carnell) ought to have said, 'Christianity is a coherent religion for the Christian'." (*Ibid*). Here, it would seem, Dr. Young definitely takes the position that logic is not neutral, that reason cannot operate successfully apart from Christian revelation.

Does such a position plunge us into subjectivism? Dr. Young might suggest that when he says, "Who is to determine which view is consistent and which is self-contradictory? Sidney Hook? Edgar Sheffield Brightman? Or Gordon H. Clark?" (*Ibid.*). He is on better ground when he says, "The significance of specific data is always relative to some world-view" (*Ibid.*).

In his position Dr. Young approaches the philosophy of Dooyeweerd (Cf., *J. A. S. A.*, VI, 2, pp. 8 ff.), Vollenhoven, and Spier in Holland and Van Til in America, all in one way or another adherents of the Philosophy of the Cosmonomic Idea. He does not go as far as Van Til, however. He says, "If human experi-

ence by itself be the standard of all attainable truth, then one's choice of world-views is limited to some type of idealism or naturalism" (*Ibid.*, p. 201). Van Til would go farther and say that if one rejects the Christian starting point, logically the possibility of philosophy, and of all thought, has lost is ground and is destroyed.

What are we to say about this problem of the relation of Christian faith and philosophy? It is evident that everyone admits that *de facto* thought is conditioned by religious attitudes. The believer in the autonomy of reason will see these influences as accidental, however, as able to be transcended by reason—that is, if he has not succumbed to a modern scepticism. But certain Christian philosophers have been claiming recently that faith is essentially connected with reason and conditions it fundamentally. If such a position is taken, the autonomy of reason and of science is destroyed, one of humanistic philosophy's most cherished citadels has fallen.

I do not believe that Dr. Young has penetrated this question as deeply as some, at least in his *Introduction*: but he appears to question the autonomy of reason. He must know what he does, and how radically he is attacking! But the radical approach, it seems to me, is ultimately the only fruitful one.

After speaking so much of the need for Christian texts in philosophy, it might appear strange that I now say that the greatest need facing us is for a thorough discussion of the problems between, e.g., Clark and Carnell, on the one hand, and Dooyeweerd, Van Til, and shall we say Dr. W. C. Young, on the other. Our Christian philosophic thought does not present a united front. On the deepest level of discussion among evangelical philosophers the forces are clearly split. There is much need for deep study and for fruitful discussion.

In the meanwhile, even though Dr. Young has not given us a work where we can discern that the more ultimate problems are adequately thought out, I believe his text will help fill a real need.

Rockmont College, Longmont, Colorado
May 7, 1955.

PSYCHOLOGY

by

Philip Marquart, M.D.

A Christian Approach To Psychological Medicine is a small booklet published by the Inter-Varsity Fellowship of Great Britain. It was prepared by a group of Christian physicians and psychiatrists for the Christian Medical Fellowship of Great Britain.

The writers indicate that some of the teachings of psychology conflict with the Scripture, but this fact should not prejudice us against all Psychology. They claim that man is more essentially a dipartite than a tripartite person. The background of their writings is Biblical. They recognize conversion and spiritual growth—but not unto perfection.

In the section on schools of Psychology, the prevailing determinism is pointed out. Freud is not totally condemned, since he found many facts about human nature. I believe they should however, point out that the Bible gives a more adequate picture of personality structure than does the id, ego, and superego. They should also point out that Freudian psychoanalysis, depth psychology, or the couch method often hurts Christians by producing greater conflict. It is indeed a form of "brain-washing" to a Christian, but this method is used by comparatively few psychiatrists.

On page 37, it indicates that our physical bodies are to be replaced by "spiritual bodies", immediately after physical death. This is not true. The child of God goes to be with Christ, without his body, for that lies in the grave, but he is to receive his spiritual body (made of molecules and atoms) at the time of Christ's return to rapture His Church.

This booklet takes a dim view of pre-frontal leucotomy (lobotomy), all shock therapy, and the new drug therapy for psychoses. We can easily agree in all of these except that the appropriate shock therapy is often helpful for Christians. They give strong support to the use hypnosis, with psychotherapy.

Wheaton, Illinois
May 2, 1955

Book Reviews

Factors of Evolution by I. I. Schmalhausen (Blakiston Co. 1949) This is a book of 327 pages translated from the Russian by Isadore Dorick and with a foreword by Dr. Theodosius Dobzhansky. The latter, one of the foremost geneticists of our time, is of the opinion that Schmalhausen is the greatest living biologist in the Soviet Union.

Variability, mutations, the struggle for existence, natural selection, and adaptations are discussed quite fully in the book and sometimes quite repetitiously. On the whole one might find the volume poorly organized and quite dogmatic in spots.

Some statements to which one might take exception are—"In this way, environmental factors are more and more controlled by the organism" (comment—certainly not true for lower organisms)—"It is obvious that every hereditary variation should change the entire organism" (comment—this would need a lot of inter-

pretation)—"the mutation is genetically an even more stable condition" and later he says—"the normal is the least stable condition" (comment—these two statements, on the same page, are hardly reconcilable)—"every change in the hereditary foundation is a mutation" (comment—this is rather a broad statement, to say the least)—"the creative role of natural selection, which produces new types". (Comment—natural selection does not produce new types but only acts on those produced by other forces).

Schmalhausen believes that mutations and consequently evolution occurs most frequently in the higher organisms. The reasons he gives are not very convincing. It is true that many lower organisms have remained phylogenetically identical or almost identical but still there are fantastically large numbers of forms and varieties among these; evidence (possibly) that many changes have gone on in these organisms.

I. W. Knobloch

March 26, 1955

Out of My Later Years by Albert Einstein; pp. 282; $4.75; Philosophical Library, New York, 1950.

Apparently people will never stop accepting uncritically the words of a famous personality. Albert Einstein has many opinions on many subjects, and there are those—including the publishers of this book—who rejoice that such opinions even exist. This attitude often implies unquestioned acceptance of Einstein's ideas. On the other hand, there are those who feel a scientist's opinions in non-scientific fields need not be considered—especially so in the case of one whose ideas are as extreme as those of Einstein. It is wrong to applaud his ideas because he is famous and as bad to dismiss them lightly.

* * *

This book is a collection of essays and talks made by Einstein between 1934 and 1950 on science (written popularly), philosophy, religion, politics, economics, scientific personalities, and Jews. Each essay and talk is an apology. He is clear, eloquent, and his logic has real force. It is difficult to find flaws in his argument. His conclusions, though radical, are almost forced upon us. For example, he concludes (1) there is no personal God, (2) that ethics and (3) morals are man made, (4) that the Bible cannot be absolutely true, (5) that socialism ought to supplant capitalism, (6) that man is progressing morally, and (7) that there should be world government.

There is a tendency to brush aside his conclusions. But his strong logic leads to these conclusions. Are those who do not accept his conclusions illogical?

These are his arguments:

1. While the idea of an omnipotent, just, and omnibeneficent God gives comfort and guidance to man, it then follows that all occurrences, including human events, are the work of God. He believes, as a man, that men have freedom of action. Then the God with the attributes he has described could not exist.

2. Ethical principles according to him rest on axioms, and these axioms man derives from his experience. For example, the ethical principle "Thou shalt not lie" he shows rests on the axioms (derived from life experience), "Human life shall be preserved" and "Pain and sorrow shall be lessened as much as possible."

3. We can observe life and note that the principles of all men should be such that there is the greatest satisfaction and security, with the least suffering, to all. Conduct which follows from this rule is moral. For him this defines morality.

4. Science is the refined thinking of man. He says some science conflicts with Biblical statements and therefore these Biblical statements are not true.

5. Technology is making men more and more interdependent. Individuals thus have less and less control over their own fortunes. To enable individuals to keep themselves from being thrust out of their places in the economy, Einstein proposes that they be given back some of the power interdependency has taken from them. Two things are proposed: that the workers own the means of production and that each be guaranteed employment. This, for Einstein, is socialism.

Socialism will work because men have within themselves the ability to cooperate with each other. This ability and other abilities flourish best when they are not hindered by the competitive spirit, a selfish spirit. The argument in the previous paragraph shows that socialism is *now* an *absolute* necessity, but he says that because of the undesirability of the competitive spirit socialism would always have been preferable.

6. If there is a theme in this book, it is that man is progressing morally. For, says Einstein, the purpose of man's existence is to progress. Man has the ability and the desire to progress. Thus, Einstein would expect man to progress morally and, while he does not prove it, he has no difficulty in finding examples.

7. The argument for world government is similar to that for socialism. Modern technology has made war so devastating that it threatens civilization. A good way to stop groups from warring with each other is to place an authority above them. The world government he envisions is such that the only power it would have is that necessary to prevent war.

World government, like socialism, will work because men *can* cooperate with each other. This spirit of cooperation can flourish if only the barriers—in this case, between nations—are broken down.

These seven conclusions and the reasoning that leads to them are not always stated formally; rather, these seven arguments are gleaned from the whole book and they very evidently represent the basis of

Einstein's philosophy. There is little, if any, of this book that cannot be related directly to these arguments. The scientific essays are no exception, for his scientific efforts are aimed at finding the law from which all other natural laws are derived; for him such scientific activity is closely related to the inevitability of the general progress of man, which includes his moral progress.

* * *

Einstein uses logic correctly but his basic premise is wrong. If we accept any of his conclusions—and certainly some Christians also believe in socialism and world government—it should be for reasons other than those he gives. His thoroughly bad premise that leads to so much mischief is this: *Man can, by himself, do good.*

For then Einstein, the observer, can make a good, a correct judgment in deciding that men have a perfect freedom of action which leads to the deduction there is no personal God. Then, too, man can correctly observe and evaluate his experience and arrive at the ethical and moral principles. It also follows that man's science and his understanding of the Bible are right and that therefore the Bible is wrong. If we assume that men can do good, then moral progress, the ultimate in economic cooperation (socialism), and the ultimate in international cooperation (world government) must also be accepted.

It seems that accepting his premise forces these conclusions upon us. If we reject this premise, the conclusions still may be acceptable on other grounds. But as Christians we should recognize the force of his logic and that we part ways with him at the very beginning of the argument. There are too many people who attempt to disprove these conclusions by looking for weaknesses in the logic of the argument, neglecting the premises. Thus, the idea of world government is rejected because Russia will not cooperate. Such people will say that the socialist (and therefore socialism) is wrong because he ascribes far too much evil to capitalism. Some will also suggest that moral progress is not a fact because it is not observed to be a fact.

But Einstein is very realistic and arguments like these do not refute his main ideas. For example, he can easily and convincingly visualize a world government which does not include Russia. He does not ascribe all economic evils to capitalism, and, even more, he does not think socialism will remove all those evils. One cannot successfully dispute with him about moral progress because he readily admits there is only a small *net* advance, and that there are many backward steps.

Christians should not be willing to accept the foundation of the beliefs of the non-Christian and be satisfied with trying to weaken—usually in a questionable way—the superstructure. Above all, Christians should not be afraid to say plainly and clearly that ultimately it is God, and not man, that does good.

* * *

To say that Einstein is a logical thinker and that he is preeminent among scientists does not mean that he cannot make statements which seem rather foolish.

1. Concerning thought in the nineteenth century (p. 9) he says, "No one would have been taken seriously who failed to acknowledge the quest for objective truth and knowledge as man's highest and eternal aim."

2. He finds difficulty (pp. 248-250) in answering the question "What is a Jew?" But he concludes Jews are a community of tradition and that they have two essential characteristics, which comprise a *definition*: (a) They are that group which has the ideals of social justice, cooperation, and tolerance among all men. (b) The other distinguishing characteristics of this group is that they have a high regard for intellectual and spiritual effort.

3. On p. 170 he says that some day everyone will be glad the Russians have demonstrated the practical possibility of planned economy "by vigorous action".

4. On pp. 186-187 the question of the power a world government should have, in order to keep the peace, is discussed. He says that for this reason it would be necessary to prevent oppression, such as that found in Spain and Argentina. However, he says the ruling group in Russia is not a menace to the peace.

5. He says that one of America's chief faults is that she causes the Russians to distrust her. America should (p. 192) renounce offensive use of the A-bomb. In this same vein (p. 157) he said *in 1947* that keeping troops in Korea was bad for America because that was accepting the premise of war. Before the Korean War his advice was taken.

However, Einstein is vigorous enough in opposing Communists in certain critical matters—world government and A-bomb secrecy among them—to show that he could not be a Communist sympathizer.

* * *

The science essays are stimulating. There is discussion of relativity theory, an intriguing derivation of $E=mc^2$, discussion of the logic and foundations of physics and discussion of field theory and attempts to unify the laws governing matter, radiation, and electrical, magnetic, and gravitational fields.

Some significant ideas:

1. An object moves only with respect to *another* object, not with respect to space. This is the basis of relativity theory.

2. The basis of physics—now in evolution—cannot be obtained by induction, but only by free invention. The resulting simpler and more inclusive laws are proved only by their usefuness.

3. Quantum theory cannot give "a complete description of the physical system or happening". Field

theory has not yet explained molecular structure and quantum phenomena.

* * *

The scientific section of the book is unintelligible to the non-scientist, but is useful and clear—compared with other discussions of field theory and relativity—to the scientist. The non-scientific part of the book—over two-thirds of the book—is recommended to those who accept nothing on the authority of man and who are not over-anxious to find common ground with any and all who have conclusions to make.

Russell Maatman

Letters

Editor:

May I say a few words in reply to the uncomplimentary review of my book, "The Creation: Facts, Theories, and Faith" in the March issue of your "Journal"?

Book reviews can be quite revealing, more so when viewed in juxtaposition than when viewed separately. In another review a Christian professor of biology of Ph.D. rank had criticized my book on the following grounds "Some of the statements regarding evolution do not properly present modern evolutionary thinking. On page 61 we are told that Darwinism is not as popular as it was in the days immediately following Darwin, and two statements from books published in 1927 and 1929 are quoted in substantiation. Actually a modified form of Darwinism is still the prevailing theory of evolution today."

In your review, now, a professor of anthropology at a different college comes along and writes: "Evolution, as in so many anti-evolutionary writings, is treated almost completely as Darwinianism unchanged. The author believes that 'The strongest proof against it is that acquired traits are not transmissable to one's offspring. . .' when evolutionists for over a generation have known this and have developed their theories accordingly."

The two professors obviously do not agree. If two men who both have that "formal background in the scientific disciplines related to the subject" can see the same thing so differently, it again emphasizes the truth which I attempted to stress in my book that man's scientific knowledge is uncertain, whereas God's truth is certain.

Both professors crticized me for quoting not only recent writers, but also men of the 20's and the 30's. Also this, if it is a foregone conclusion that all scientific opinions become obsolete in twenty or thirty years, should caution us not to lend to much credulity to any evolutionistic theories or other philosophical speculations of today. In another ten years or so they will be discarded, anyway.

Some of the studies made by the A. S. A. are good. I liked the attempt of Russell Maatman to define "natural law" in the March issue. Such underlying concepts will help to keep the science of Christian men from becoming too much like secularistic science. If we remember that "This grand natural law that only God can know is *the* simple, all-embracing law of which man's generalized laws are but feeble prototypes," then we are not so apt to lay too much stress upon these feeble prototypes in building our world-view.

Truly yours,
Theodore L. Handrich

1031 14th Street
Glencoe, Minnesota
March 21, 1955

Editor:

In reply to Mr. Handrich, it would appear that the statement: "Some of the statements regarding evolution do not properly present modern evolutionary thinking," and the statement: "Evolution . . . is treated almost completely as Darwinism unchanged" are in substantial agreement.

The remainder of the first statement seems to imply, as my review explicitly stated, not a criticism for quoting men of the 20's and 30's, but for quoting them as "scientists of today." Both reviews refer to the same development on pages 61 and 62 of the book.

There may be further semantic shades of difference between the two quotations in Mr. Handrich's letter, but the first seems merely to be saying that actually a form of Darwinism *is* popular today, which is true; while the other is concerned with the fact that if the author believes such a "proof" as he advances, is the strongest one against evolution, his conception of evolution is not that held by present-day evolutionists.

Sincerely in Christ,
James O. Buswell III
Instructor in Anthropology

Wheaton College
Wheaton, Illinois
April 28, 1955

Editor:

Many members of the ASA probably believe that ministers and other non-scientists who use scientific data or theories in public should first check their statements with a specialist. We have all been embarrassed by the unfounded statements about science or scientific subjects in sermons, and we feel that such statements do harm to the cause of Christ. Would it not be well for us, who may be specialists in one or more of the branches of science, but who cannot possibly be more than intelligent "laymen" in others, to

be humble also, and check our statements in another field before we publish them?

I am referring to several statements which have been made about human culture (under such phrasings as "knowledge", "history", etc.) by ASA members, particularly some made in the pages of the JASA. There is a rapidly developing science of culture which is a branch of anthropology. Sociology and psychology also touch on it, but the largest bulk of cultural data and of culture theory are in the province of anthropology. The fact that we are human beings, live in a culture, and observe, is not reason for considering ourselves qualified to speak on culturological questions any more than the fact that we have bodies makes us anatomists, biologists, or zoologists.

Certainly there should be no objection to a scientist of one field drawing together the data and theories of other fields into a broad synthesis. For that we have real need. However, the person who undertakes to do so should be sure of his data and theory. He further has the right to question the theory of another field *if he knows what it is,* and if he can support his critique by a scholarly, documented, accurate presentation. What has happened in the instances referred to is not such a careful consideration of anthropological material, but a hasty generalization or "illustration" about human behavior which a knowledge of anthropology would show to be untrue, or unproved, or very questionable.

The instance which calls forth this letter is William J. Tinkle's "The Principle of Growth as an Obsession" (JASA *6*:4, pp 8, 9). In this article at least the following assumptions about human culture are untrue or doubtful: 1) "Knowledge" grows approximately like an icicle, by adding elements almost indefinitely. "Growth of human knowledge also is a process of accretion, tending to accumulate an ever larger stockpile". 2) People who are "depending on the muscles of men and beasts rather than upon steam and electricity" are not growing in knowledge. Also, if the present industrial growth stops (as Tinkle thinks it must) that will be the end of the growth of knowledge. 3) Culture will not develop to a point where it can compensate for the disrupting effects of the present rapid expansion of industry because the "area of the earth is a fixed amount".

The first of these assumptions is an oversimplification. Accretion of culture or of "knowledge" is a structural-function process, subject to severe cultural limits, and occurring in functionally related groups of items, not in any way analogous to an icicle. It gets bigger in branches and miscellaneous directions, one direction growing when another is not, taking spurts, and often losing whole branches or areas of knowledge while others grow.

The second assumption is reminiscent of Leslie White's one-sided culturology which places efficient use of energy as the only real measure of progress. As stated by Tinkle, the Mayas, Aztecs, Incas, Cambodians, Ancient Egyptians, Sumerians, Babylonians, Greeks, Romans, Anglo-Saxons, etc., knew no growth. The third assumption is the most controversial of the lot, but it is by no means a foregone conclusion that cultural developments of technology would not make it possible eventually to build a world of ever-mounting skyscrapers, a mass of city solidly covering the earth, with food grown in giant algae tanks on the roof-tops. (Obviously I'm fooling so far as the details are concerned, but the present industrial growth is quite possibly no greater a disruption of the balance of culture than was the industrial revolution for its time.)

I happen to agree with much of Dr. Tinkle's conclusion, though obviously not with his anthropological arguments. I would put it this way, that the idea of growth is a principal myth in contemporary American culture, and that as such it is virtually an unquestioned assumption. Most of the doubts about it which are expressed in contemporary America skirt its periphery. A part of the myth is the assumption that growth takes place without outside cause, stimulus, or limitation. Many aspects of this myth can be questioned; and I believe, *a priori* of anthropology, in God as a transcendent, originating, controlling, and limiting force, working both indirectly and directly on His creation.

Sincerely,
William A. Smalley

South Boulevard
Nyack, New York
January 23, 1955

Editor:

Thanks for calling to my attention the comments of William A. Smalley on my paper, "The Principle of Growth as an Obsession," which was published in the Journal of Dec. 1954. It is interesting to see how people disagree, for a member who heard this paper read at the Winona Convention wrote me that it was the outstanding paper of the meeting.

It is gratifying to note that Mr. Smalley agrees with me in my principal idea, namely that growth in living things is not innate, therefore growth can not be taken as a substitute for creation. His disagreements are due largely to misunderstanding.

This paper is not intended to be a broad synthesis but is essentially in my own field, since growth is a biological process when it occurs in living things. As an illustration, to make my point clear by contrast, I stated that the growth of human knowledge resembles the accretion which we observe in inanimate things more than it resembles growth in living organisms. There are differences in details to be sure, but I maintain that this is a good illustration.

In Mr. Smalley's second point of disagreement he quite misunderstood my statement, for I did not say that people who have not been influenced by the industrial revolution fail to grow in knowledge, or that knowledge will cease when industrial expansion ceases. These statements are contrary to what I wrote, for I pointed out that the industrial revolution has such limitations that it does not indicate growth to be innate or universal. Although people at present may unduly appreciate the industrial revolution, it really is but temporary and local.

Concerning the exhortation to consult specialists in other fields, who should be consulted? Human knowledge does not belong to anthropology alone but to history, languages, as well as the many branches of science. It is well to compare notes but this is an endless task.

I hope to have an opportunity to discuss these points with Mr. Smalley at a convention, for this is a prime purpose of holding conventions.

Very truly yours,
Wm. J. Tinkle

Albany, Indiana
April 25, 1955

Editor:

According to Dr. H. Harold Hartzler's request, I am sending you a brief write-up of the type of work which I have been doing in Hong Kong 1949-1954.

I was pastor of the Heap Gay U. B. church in Hong Kong and of the Zion Church in British New Territory, 25 miles north of Hong Kong. I baptized more than 100 persons during by five years of ministry including a chemist, Dr. Harry Huang, Ph.D. (Ohio State University) an engineer, Prof. C. W. Chu (Yale Univer.) Dr. Allen Huang, M.D. (Peiping union medical College) and several teachers.

I have written 90 different kinds of tracts and 25 books (the details of which can be obtained in the enclosed pamphlet). We have been sending our tracts and books to the overseas Chinese outside of communist China. Among the books written are three volumes of our *Christianity Stands the Tests of Science* the third volume of which contains the translation of five chapters of your book *Modern Science and Christian Faith.*

We also write sermons for our broadcast in Radio Hong Kong every Sunday afternoon reaching millions of Chinese inside and outside of the bamboo curtain in China.

We also render free clinical or medical service to the refugees and poorest people living in the slums in Hong Kong and Kowloon. We have Bible women to preach the Gospel of Jesus Christ in our two free clinics in Hong Kong. We feed undernourished children.

Our aim is to reach as many people as we can with our radio sermons and with our Christian literature, giving them messages of salvation and winning souls to Jesus Christ. We need your prayers and support. We need a larger fund for the publication of Christian literature in Chinese.

With kind regards. May the Lord bless you.

Yours sincerely,
Y. T. Chiu

Huntington College
Huntington, Indiana
March 23, 1955

Editor's Note: Elsewhere in this issue is an article by Dr. Chiu outlining the work he is doing in Hong Kong.

Dear Harold:

Readers of the *A.S.A. Journal* may possibly find of some interest four articles which have recently appeared in *The Calvin Forum* dealing with Christian evidences. "We Need Specialized Evangelism" (Feb., 1954) urges cooperation among Christian scholars in the setting forth of the different aspects of our system of evidences and urges the practical application of the same in evangelism.

The three remaining articles deal with "The Methodology of Christian Evidences" (May, June-July, Aug.-Sept., 1954). Problems dealt with include an analysis of "faith" and its relationship to a reasonable presentation of evidences, the nature of "facts" and their appropriation in witnessing to different types of individuals, the need for orienting our Biblical approach to the contributions and challenges of contemporary theology and philosophy as well as science, and the utilization of the scientific methodology (with the proper understanding of its nature and limitations) in the gathering of evidential data from God's special and general revelations and in the cooperative presentation of the "reason for the hope that is within us" to men.

Yours in His service,
William Paul

Editor:

In the Biology column of the Journal, Dr. Irving W. Knobloch has been giving us interesting facts concerning the changes which occur in plants and animals but his interpretation seems uncertain. He does not make clear how his articles fulfill the purpose of the A. S. A. as stated on the inner cover of the Journal, "to study those topics germane to the conviction that the frameworks of scientific knowledge and a conservative Christian faith are compatible".

While Dr. Knobloch has cited a number of facts, yet a few more will help in the interpretation. Shanti Batra reports the doubling of chromosomes in muskmelons, (Journ. of Heredity V. 43, no. 3, p. 141 ff) and since his results are so characteristic of tetraploids in general they are worthy of note. The plants in which the chomosomes had been doubled by the applica-

tion of colchicine had larger leaves, flowers, and stomates than normal plants and the stem diameter was greater, hence these tetraploids are called "gigas". Yet the gain is more apparent than real, for the growth rate is slow, making the plant as a whole only half the size of the normal diploid, the fruits are small but sweet, and the number of viable seeds is only 24 per cent of the diploid seed number. Similarly tetraploid tomatoes and jimson weeds, *Datura*, are not so tall as diploid plants and bear fewer seeds. Consequently tetraploids find difficulty in becoming established in nature, although they might do so where the vegetation has been destroyed, but they tend to contribute nothing which is evolutionary superior. As for haploids, triploids, and plants with one extra chromosome, these produce types other than their own if they have enough vigor to reproduce at all, and are most likely to produce diploids.

Hybridization may combine genes in new groupings but since no new genes are formed, the amount of change afforded is limited. Another limitation, which Dr. Knobloch mentions, is the inability of some species to cross. But it is hard to speak of species as long as there is no standard as to whether a certain group is a variety, a species, or a genus, different taxonomists classifying them differently. The term "fixity of species" has no meaning until we have fixed a definition for the word *species*.

Dr. Knobloch recognizes that genes have great stability and, like other biologists, mentions no mutant which is a benefit to the plant or animal unless the environment changes. Yet since genes do not change gradually but only by the metamorphosis which we call mutation, it is hard to see how evolution could progress far without mutation. New and improved genes would be needed.

Considering these facts, most members of the A. S. A. believe that the variations in living things have increased the types and varieties (species also perhaps if we could agree on a definition) enabling organisms as they migrate to fit into new niches in the habitat. Other changes seem to be fortuitous losses which tend to be eliminated by natural selection.

Dr. Knobloch does not indicate whether he interprets changes thus or whether he believes *Amoeba* changed to *Homo* by innate properties and natural forces. Accepting this doctrine (evolution) entails relinquishing or reconstructing our belief in the Bible. The literature of the A. S. A. has set forth the facts of nature which do not agree with the doctrine of evolution. No writer is forced to agree with this literature, but he should mention it, and if he disagrees, state why. We tend to go back to the starting point too often.

But some one will object that evolution does not necessarily mean a simple animal changing to a complex one, but change of any degree in any direction. The A. S. A. convention of 1954 decided that the latter idea should be called not evolution but variation. Of course Dr. Knobloch is at a disadvantage for he was not present at the convention.

Sincerely yours,
William J. Tinkle

Albany, Indiana
March 23, 1955

Dear Dr. Tinkle:

Your copy of a letter of the 25th received. My series on methods of species formation seems to have disturbed you. The purpose was to show that new genotypes can be formed by any one of the four methods mentioned. The fifth article in the series, to be published in the next issue, clarifies (I hope) the meaning of this for the Christian and makes my position rather definite on this point. I won't spoil it by telling you what the article has in it.

I grant what you say about certain polyploids but one must not overlook the many fertile allopolyploids. These are evidence of evolution in a limited sense.

In regard to hybridization we do have new species arising without new genes. To satisfy my definition of evolution we may not *need* new genes. If you prefer to call this variation instead of evolution, that is your prerogative.

If I am not mistaken the A.S.A. published a book a while ago in which certain of the writers pointed toward a more modern type of evolution than I ascribe to. How does this statement square with yours in the second last paragraph? I believe that the A.S.A. membership holds a great variety of beliefs on evolution. This is a good thing in my humble opinion.

I have been hoping to attend one of the conventions but last summer I collected in Mexico for the National Science Foundation and this summer I have to teach here. Possibly you will be at the A.I.B.S. meetings here September 5-9? If so, we can have a nice talk or two.

Sincerely,
I. W. Knobloch, Ph.D.

East Lansing, Michigan
March 29, 1955

Further With Christ In the Publication of Chinese Christian Literature

By Dr. Y. T. Chiu, Ph.D.
Pastor of Heap Gay U. B. Church, Hong Kong and Superintendent of U. B. Mission in China

As Chinese Christian literature is so limited, there is a great demand of good books for the Christians to read. In spite of the fact that only about 10% of the Chinese can read and write and the majority of the Chinese Christians cannot read English, even most preachers and pastors of churches in Hong Kong cannot read books printed in English, it is a special fea-

ture of our Heap Gay U. B. Church to print more books and tracts in Chinese for them to read and at the same time we want those who want to study something about Christianity to read our books and tracts.

To go further with Christ in the publication of Christian literature we should write and print as many books and tracts as we can. Good books in English should be translated into Chinese for the Chinese Christians and non-Christians so that they may have a better knowledge of Christianity and the Church, that their faith will be strengthened and the luke-warm members of the church be encouraged to render more service to the Master. We also want to reach the non-Christian Chinese with our tracts, giving them the Gospel message of salvation and telling them more about our Savior.

For the last five years of my ministry in Hong Kong as pastor of the Heap Gay and Zion churches, I have written and printed 90 different kinds of tracts and 20 books, many of which have been sponsored by the local W.M.A. of each Branch, and Christian friends, too numerous to mention.

Our tracts and books have been sent to the overseas Chinese in Macao, Formosa, Japan, Philippines, Indonesia, Indo-china, Burma, Siam, Singapore. Malaya, Mauritius, Honolulu, U.S.A., Canada, South America and Europe. As there are 25 million Chinese living outside of the bamboo curtain, we want to reach as many of them as possible. This is the most economical way of reaching the unreached with our printed page.

In Hong Kong, Kowloon and British New Territory we have distributed our tracts and books among the two hundred thousand students and 60,000 Christians. We also give away our tracts to the hotels, hospitals, clinics, stores or shops, restaurants, churches, schools and homes. We also distribute them among passengers traveling in ferries across the harbor, street cars and buses. Our Bible women and our Christian workers and the author always carry a good supply of our Christian literature so that we may give to those who are interested. We have received quite a few letters from our readers who are appreciative of our work and asked us questions. I was told that one Christian woman who attempted to commit suicide unsuccessfully, was given some of my tracts to read in the hospital. She received comfort and repented. She wanted to read more and asked her brother to get them for her to read. Dr. S. C. Young, a very earnest Christian in Hong Kong always carried our tracts in his pockets and brief case so that he could give them away to his patients and to those who are enquirers of the Christian truth. We sincerely hope that many of our readers may be won to Christ so that more souls may be saved. This is the aim of our work and we request many prayer warriors to pray for our work.

Pastors of the churches in Hong Kong, Kowloon and Macao give away some of our tracts and books to the new converts or candidates who prepare themselves for baptism.

Among the books that we have printed, we have six volumes of sermons, three volumes of our books on Christianity and Science (the third volume will be printed next spring); one volume of Bible stories for children (two more volumes to be written); two volumes of Bible characters, (more to be written and printed later); two volumes of Religious and Christmas plays; Spiritual Milk, Spikenard, Nutrition and Health and a hymn book in Chinese and English and romanized Chinese; and the Prodigal Son and "On What Does A Man Live? (Four act play)."

I want to give the contents of the above mentioned book so that we may receive suggestions and criticism, that we could find out what to write or translate in the near future.

SERMONS—Volume I. Christ's Mission; The Cross of Christ; The Wonderful Christ; Who is Jesus? Christ's world; The beginning of the Gospel; The Greatest Friend; Jesus Christ, our Model Teacher; From whence cometh Jesus? The meaning of Christmas; Victory with Christ; the call of Christ; Why we choose Christ; Lord of Life and Imitating Christ.

Volume II. Hearers and doers; Gain through loss; The Only Truth; Brevity of life; God's unspeakable gift; Some Christian certainties; Faith and hope; "Be not afraid, only believe."; Does God still care? The proper attitude of suffering; Our knowledge of the Bible; The art of prayer; Christian fellowship; "Preach the Gospel"; and How to preach the Gospel.

Volume III. Do young people need Jesus Christ? The importance of Christian education for children; An excellent gift (The Bible); "Ye are the light of the world." Scientific and religious view of life; Not by bread alone; our physical & spiritual needs; The Christian way of life; Marks of a Christian; Greatest thing in the world; the secret of success; The secret of happiness; The God Who satisfies; The source and proper use of wisdom; and Consecration.

Volume IV. Does God exist? After death, what? How to be born again? What power has the Blood of Jesus Christ? What values has the Bible? What is the most precious thing in the world? Which way are you looking? What to think about? Habits; Character Training; Choice between good and evil; our Wonderful Protector; The potter and his clay; Eternal life problems; and the three phases of the Christian life.

Volume V. The Church and its members; The nature of the church; The victorious church; The church in the days of the apostles; The mission of the church today; some suggestions for the development of the church; Baptism and Holy Communion; Christian worship; Pastors, elders and deacons; Sunday school, Young People Missionary Bands and Harvesters; Heavenly citizenship; "Ye are the salt of the earth";

Fruit bearing; Duties of church members and Living for Christ.

Volume VI. Suffering and life; Christ and peace; A Christian's view of life; Optimism and pessimism; Growth and fruit-bearing; Love and hatred; The Bible and life; Christmas meditations (two sermons); The new man; Mountain climbing and descending; The flesh and the spirit; Responsibility of stewardship; progress and retrogression; self-exaltation and humility.

SPIRITUAL MILK. Christ and life; What is the greatest need? Spiritual milk; Choose the right way; A model Christian (Caleb); God Eternal; Youth and religious conviction; "Be ye wise as serpents"; God's plans; The Prince of Peace; Spiritual growth; Working with God; Spiritual engineering; Hold fast the good; The portrait of Christ.

CHRISTIANITY AND SCIENCE (Christianity stands the tests of science).

Volume I. Science, a way to God; Is there any conflict between Christianity and science? Belief in God and advancement in science; Science proves God; Miracles and science; Is science almighty? Science and Christians; Mutual help of Christianity and science; Science shows the Providence of God; Science confirms the teachings of the Bible.

Volume II. Spiritual science; Spiritual agriculture; Spiritual vitamins; Spiritual biology; Spiritual medicine; Spiritual chemistry; Spiritual physics; Spiritual Mathematics; Science and God; Science and Satan.

Volume III (in press). Evolution and creation; Science proves the resurrection of Christ; The atomic age and the new sense of moral; Revelation of light; The riddle of life; A scientist's view of life; Bible and modern science; Modern science and the flood; a Christian Interpretation of science; Medical Science and the Bible.

BIBLE CHARACTERS.

Volume I. Joseph, a model for young people; Joshua, the victorious general; Deborah, the courageous judge; Esther, the sacrificial queen; Daniel, the fearless statesman; Mary, the mother of Jesus; Bartimaeus, a blind man with spiritual sight; Zacchaeus, the twice-born publican; Mary of Bethany, the woman immortalized by Christ; Stephen, the first Christian martyr.

Vol II. Noah, the first preacher; Abraham, father of the faithful; Moses, the law-giver; Samuel, the upright judge; The Shunammite, a woman of good example; John, the baptist, the "forerunner of Christ; Peter, the apostle who loved Christ; Paul, the Apostle and Missionary; Lydia, a good Christian business woman; Aquila and Priscilla, a model couple.

BIBLE STORIES.

(1) For children. The fall of Adam and Eve; The destruction of Sodom and Gomorrah; The trial of Abraham's faith; Esau made a bad bargain; Joseph, a good example for youth; A happy family re-union; the stratagem for taking Ai; "The sword of the Lord and of Gideon"; The bait of Samson; Samuel, the boy who could hear God's voice; David, the giant killer; King Saul; The wisdom of Solomon; How the food that never grew less; True and false prophets; Naaman and the phophet; Esther, the patriotic queen; Job, the patient man; The fiery furnace and the lions' den; and the city of Nineveh.

(2) SPIKENARD. The forbidden fruit; The great flood; Sacrifice; A happy re-union; A miracle; The Holy Child; Spikenard; The Cross; Resurrection of Christ; and regeneration.

RELIGIOUS PLAYS.

(1) The Prodigal Son in three acts.

(2) On What Does Man Live? Religious play in four acts.

(3) One Act Religious plays.

Volume I. The good Samaritan; God is Love; A cup of cold water; The Lord is risen; The shepherds; and A family celebrates Christmas.

Volume II. (in press). Christmas night; The birth of Christ; Santa Claus; An Ideal Family; Whose home is in heaven? and A Happy Christmas.

Selected hymns in English and Chinese and Romanized Cantonese. 50 hymns with 600 Chinese characters.

Nutrition And Health—For Preachers and Laymen

The author wants to take this opportunity to express thanks to all sponsors of our tracts and books. Suggestions, criticisms will be gratefully received. We want to continue writing and printing more tracts and books in the near ftuure. We want those who are interested in our work to pray for all our readers so that they will study the Bible and accept Jesus Christ as their Savior. Thus the aim of our publication of Chinese Christian literature is fulfilled and souls who read our books and tracts will be saved and won to Jesus Christ.

Our committee for publication consists of Dr. Y. T. Chiu, editor in chief; Mr. C. C. Owyang, assistant editor who is supported by the W. M. A. of the U. B. in Christ Church in Glendale, Calif.; Messrs. C. T. Lum, S. Y. Lee, H. T. Ho, Y. S. Tse and H. T. Owyang.

While teaching at Huntington College for 2 semesters (until June 15, 1955) the writer has more time to study, translate and write and send manuscripts to our publishing committee in Hong Kong to print more books, tracts and plays.

Medical Mission In Hong Kong

Editor's Note—The following was a printed circular and is published here to indicate an important effort being carried out

365 King's Road, North Point,
Hong Kong, 16th Feb., 1955.

Dear Friends,

As this circular goes to press of all events of recent

months the most important has been of course the arrival of my dear wife from England. There was much joy among my Chinese friends when they found her before I did and were all waiting at her cabin door as I came at length into view.

I was able to take three days off from the two clinics: and then started a round of sightseeing and Chinese feasts. Hong Kong abounds in attractions. There are the fish Restaurants of Aberdeen at the Western end of the Island, where one chooses one's meal from the fish, prawns and all sorts of things out of the sea, of all shapes, sizes and colours, swimming and moving before one's eyes. Not far away is the Gospel boat where two ladies hold a strategic position at the end of the long lanes of junks. Dr. Fraser then took us around Hey-ling-chow Island where we saw life made anew for lepers. Rennie's Mill Camp gave us an intimate view of what is being done for those who have lost their all in the headlong flight from China.

The last day of the Chinese New Year found us being escorted through the Cantonese market, where for one brief week in the whole year, the wealth and variety of South China's culture is displayed for sale. Then of course there are the numerous meetings of which I would place first the various activities of the Cathedral, how we have enjoyed Dean Temple's sermons. Nearly every Monday night sees us at the Officers Christian Union which meets at Archdeacon Donnithorne's home. . . The combined Missionary Prayer Meeting held in the Peninsula Hotel is a source of great spiritual refreshment, and then there is the weekly meeting of Christian University students.

The Reds need a testimony (and so does Satan) of the love and philanthropy that still moves the free world. Below I give details of how funds given for relief by some of the churches in Canada (through Miss M. H. Brown), were invested. The Lord's stocks give ten thousand per cent dividends. I do not think the investors will question my choice, for I chose the best stocks on the market. Compare this investment with say paltry oil stocks at 5%. No earthly Wall Street ever gave such gilt-edged securities as the ones I give below.

1. The first "stock" I invested in is a boy of 19, with cancer of the back of the throat. He has been treated by radium and X-ray and injections and given help from these funds.

2. The second is a man with destruction of both eyes from malnutrition. He was operated on and when he could see a little he asked me for money so that he would not default in payment of his hawker's license. Operation has given him partial sight in one eye, the other operation unfortunately was a failure. Through a gift he was able to retain his license.

3. This man is one with a peculiar blood vessel disease. The Government hospital advised amputation of his leg above the knee. He came to me and I took a certain risk, because these funds could be used partly for the support. The amputation below the knee has been successful I am glad to say. A cheaper artificial leg can thus be fitted.

4. This is a youth with T.B. and a lung cyst. Rest is of course essential. "How can I rest," he told me, "I must be a coolie or die." These funds have helped to give him rest, bless God for the compassion in the world.

5. This one is a case of cataract in an old man. Operation has given a fair result. But he is old and infirm, even so, a little capital has enabled him to open a small stall.

6. This man is an Indian with a large family. Peculiarly I was asked by the Refugee committee if I could give him a job as a male nurse or orderly. I had to reply in the negative but instead have twice given him a little help. It gladdened but no doubt I must see him again if he cannot find a job.

7. This case is an opium smoker's wife, a brave little woman with four children who is carrying on her husband's tailoring business. I gave her from your funds something for her family for Chinese New Year.

8. The last I have chosen is a poor fisher-woman whose tiny baby was injured by a fall. While one of the nurses was attending to her baby, conversation showed her destitution. "Would the nurse buy her baby"? She asked. It seemed wise, and a bargain was soon struck for $150. I have seen the baby since, now delighting in a good home, with devoted foster parents who have no children of their own. A little later I again helped the mother from these funds.

Borneo I know will be in your thoughts. Rev. John Chen has returned to Hong Kong with the hope that his British passport will soon be granted. He will thus be able, Government permitting, to form the advance guard to Borneo. I hear constantly from the Chinese church he founded there, and every letter is a plea for him to come and teach them.

And finally it has been discovered by X-ray that I have osteo-arthritis at the base of the spine, and the doctor warns me to restrict my activities because of the resulting neuritis. What will be the outcome? Only the Lord's dealings and leadings in the future will show.

And so farewell.

Yours in Christ Jesus,

D. Vaughan Rees.

P.S. I am moving the clinic to more convenient premises and my new address will be as above