JOURNAL OF THE AMERICAN SCIENTIFIC AFFILIATION

An evangelical perspective on science and the Christian faith

In this issue --

Why do non-Christian psychologists reject Christianity?

What is nouthetic counseling?

Does orthodox mean bigoted?

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

VOLUME 28 NUMBER 3 SEPTEMBER 1976

MEMBER epa EVANGELICAL PRESS ASSOCIATION

Concerning SUBSCRIPTIONS, changes of address, requests for back issues, and other business requests, address: Executive Secretary, American Scientific Affiliation, Suite 450, 5 Douglas Ave., Elgin, Illinois 60120. The SUBSCRIPTION PRICE: one year $8.00, two years $14.00, three years $20.00. *Students*: $4.00. *Gift subscriptions*: one year, $4.00. Single copies may be purchased at $2.00 each. Second class postage paid at Elgin, Illinois and at additional mailing offices. Postmaster: Please send POD form 3579 (change of address) to American Scientific Affiliation, 5 Douglas Ave., Elgin, Ill. 60120. Published four times a year in March, June, September and December by the American Scientific Affiliation. Telephone: (312) 697-5466. Back issues: $2.00 per issue from 1974 to date; $1.50 per issue from 1963 through 1973; $2.00 per volume or 75¢ per single issue before 1963; *Supplement* 1 1976: $3.00.

INDICES to back issues are published as follows: Vol. 1-15 (1949-1963), *Journal ASA* 15, 126-132 (1963); Vol. 16-19 (1964-1967), *Journal ASA* 19, 126-128 (1967); Vol. 20-22 (1968-1970), *Journal ASA* 22, 157-160 (1970); Vol. 23-25 (1971-1973), *Journal ASA* 25, 173-176 (1973). The *Journal ASA* is indexed in the CHRISTIAN PERIODICAL INDEX. Present and past issues of the *Journal ASA* are available in microfilm at nominal cost. For information write University Microfilms, Inc. 300 North Zeeb Road, Ann Arbor, Michigan 48106.

Concerning MANUSCRIPTS and COMMUNICATIONS, address: Editor, *Journal ASA*, 753 Mayfield Ave., Stanford, California 94305. Manuscripts should be typed double-space on good quality 8½ x 11 paper, with references collected at the end, and with an Abstract of not more than 200 words. Duplicate copies of manuscripts are requested. Manuscripts longer than 15 pages will experience delays in publication. Figures or diagrams should be clear, black and white line ink drawings or glossy photographs, with a caption provided separately. The pages of the *Journal ASA* are open to any contribution dealing with the interaction between science and Christian faith in a manner consistent with scientific and theological integrity. Papers published in the *Journal ASA* do not necessarily reflect the position of the American Scientific Affiliation.

Concerning BOOK REVIEWS, address: Book Review Editor, Dept. of Chemistry, Houghton College, Houghton, N.Y. 14744. To avoid duplication in reviews, prospective reviewers should notify the Book Review Editor of their intentions at an early date.

JOURNAL OF THE
AMERICAN
SCIENTIFIC
AFFILIATION

SEPTEMBER 1976 PRINTED IN THE UNITED STATES OF AMERICA VOLUME 28, NUMBER 3

Christianity and Psychology: Some Reflections

HARRY PIERSMA

Clinical Psychologist

Womack Army Hospital
Ft. Bragg, North Carolina

Basic Conflicts

As a person who is both a Christian and a clinical psychologist, I have often been discouraged because of the antagonism many of my professional colleagues have toward anything having to do with Christianity. Few of my associates are professing Christians. In spite of the numerous articles that I have encountered which attempt to make some kind of a synthesis between psychology and Christianity, I frequently wonder if there are not inherent conflicts that face any Christian psychologist—intellectual and emotional conflicts that are greater than those that might face, e.g., a Christian engineer, chemist, architect, or physicist. I do not have any data to support this contention and I really have no interest in attempting to prove it. However, I would like to present some personal reflections on what I see as some of the basic conflicts between psychology and Christianity. First, I will examine the objections and complaints non-Christian psychologists most frequently give to explain their rejection of the Christian faith. Second, I will look at what I consider to be more basic explanations for non-Christian psychologists' rejection of Christianity—explanations that go beyond what they themselves *say* are their reasons for spurning Christianity. Finally, I will examine the unique problems that have faced Christian psychologists in the past and the ways in which they have typically dealt with these problems.

I realize that it is presumptuous to talk about "psychology" as if it were a unified field which has a solid, unquestioned theoretical base. It is only a slight exaggeration to say that there are as many theories in psychology as there are psychologists. However, when I speak of psychology generically, I am primarily referring to psychology as applied to the therapeutic treatment of individuals and groups. And when I talk about psychologists, I am referring to those of us who use psychological skills and techniques in a clinical con-

text. Obviously, much of what I will say can be applied to mental health professionals other than psychologists —psychiatrists and social workers, in particular.

Explicit Objections of Non-Christian Psychologists to Christianity

There are various reasons that non-Christian psychologists give for their rejection of Christianity. In this section I examine their *explicit* objections—the reasons that non-Christian psychologists themselves give for their antagonism or indifference to the Christian faith.

1. Christianity is regarded by many psychologists as intellectually unacceptable, i.e., Christianity is thought to be an intellectually naive philosophical system. In part, this feeling is due to the perception of most Christians as being intellectually naive and simple. Christians are regarded as individuals who suspend all judgment (if they had any in the first place) to believe what they believe. Thus, objections are raised to issues such as creation, the virgin birth, the resurrection, and so on. To a significant degree, these intellectual objections are based on the feeling that Christianity as a system and Christians as individuals are decidedly unscientific, if not antiscientific. Because Christian belief ultimately rests on faith (faith which cannot be substantiated "scientifically"), Christianity is regarded by many non-Christian psychologists as a man-made illusion.[1]

2. Many of my non-Christian associates raise what I would term as humanistic objections to Christianity. Thus, whenever these professionals see a child who has severe emotional difficulties that are caused or exacerbated by overly strict parents who happen to be professing Christians, much of the problem is attributed to the fact that the parents are Christians. Or, when a paranoid schizophrenic who beats his wife and children on Wednesday before going to a prayer meeting is encountered, Christianity is held to be the guilty culprit. In other instances, the Bible is attacked by my non-Christian associates as being non-humanistic in its outlook. For example, the Old Testament accounts of the mass destruction of heathens are cited as one instance where Christian practice falls far short of even elementary humanistic ideals. Also cited as evidences of the invalidity and harmfulness of Christianity are the numerous atrocities that have been committed in the name of the Christian faith—the Children's Crusades, the Inquisition, the Salem witch hunts, to mention a few from the remote past.

3. Many non-Christian psychologists object to Christianity because of its exclusive claims, i.e., Christianity is *the* truth. Most psychologists that I know say that most things in life are relative, that what is "right" for one person may not be "right" for another person. I don't believe that most psychologists actually operate under a relativistic framework (Carl Roger, his actual writings notwithstanding, has very concrete ideas of what constitutes a good and purposeful human existence for *any* person). But non-Christian psychologists who try to maintain a non-judgmental (i.e., relativistic) position will typically respond to a Christian by saying that "Christianity may be a good thing for you, but it is not for me." Or, "I'm not saying that your faith is bad or wrong for you, but there are certainly many other possible ways for people to find meaning in their existence." Of course, not all psychologists maintain such an open (overtly, at least) stance on the usefulness of the Christian faith. Others such as Albert Ellis[2] see any kind of religious belief as harmful and destructive to mental health. And any one connected with the behavioral sciences knows that Sigmund Freud had little sympathy for religion of any kind.[3]

Following from the belief of numerous psychologists that Christianity allows no relativism in human relationships is the belief that Christianity with its exclusive claims simply does not allow individuals "freedom." Christians are viewed as people who are rigidly tied to a system of rules that they must follow. Thus, Christians do not have the freedom to choose what they can do with their lives. They are not free to choose their own morality or their own lifestyle.[4]

More Basic Explanations

Certainly this brief survey of some of the arguments my non-Christian colleagues advance against Christianity does not exhaust the allegations made against Christianity and/or Christians. I am sure that many of the criticisms that I have mentioned have been heard by almost every Christian at one time or another. However, what I have described is what non-Christian psychologists *say* are their reasons for not accepting the Christian faith. Speaking as one on the other side of the fence, I believe that there are more basic explanations for non-Christian psychologists' indifference or antagonism toward Christianity.

1. Psychologists are often hostile to Christianity because of their firmly held belief that man is totally responsible for his own fate. To them, Christianity only destroys the sense of self-determination which man needs if he is to improve himself. I realize that by saying this I am going counter to the deterministic philosophy of a psychologist such as B.F. Skinner. Skinner has made it quite clear in various writings that he believes that *all* human behavior is a result of previous conditioning and experience. In this sense, man really has no "freedom or dignity."[5] However, it is also clear to me that beneath the deterministic surface of Skinner's philosophy lies a cherished belief (hope?) that man can still ultimately control himself and his environment. This is one reason why Skinner has written so much about the future of man.[6] He believes that man's future is ultimately dependent on *man's* ability to successfully control and manipulate the conditioning of human beings.

Other prominent psychotherapists are equally convinced of man's ability to be the "master of his fate." Albert Ellis[7] considers religion to be destructive to mental health primarily because it fosters a sense of other-dependence. This other-dependence, according to Ellis, is a counter-productive force in helping an individual to achieve mental health in that it teaches a person that he cannot change either his self-concept or his behavior. Freud is as strict a determinist as Skinner, because Freud believed that the way we are as adults is primarily dependent on our past experience, particularly our experience in early life. But even Freud cannot admit that man is a helpless victim of previous history. For Freud, man can assume responsibility and control of his life—principally by *understanding* how much of his behavior results from early experience.[8]

Thus, for most psychologists, Christianity is seen as an abnegation of responsibility. If man cannot be responsible for himself, who is going to take care of him?

2. Another reason for the small number of Christian psychologists is psychologists' fervent belief that man is basically good. Many factors other than man's innate nature are postulated to expain man's rather obvious failings. For example, much of man's behavior can be explained away by conditioning (Skinner) or early experience (Freud). Paradoxically, psychologists defend man's total autonomy except when one brings up the fact that man has failed miserably, both on a personal and social level. This failure to recognize the inherent evil present in man is somewhat the same phenomenon that Karl Menninger has recently described in his book, *Whatever Became of Sin?* [9]

Why is it that non-Christian psychologists react so vigorously to the suggestion that man may not be "basically" good and that man is sinful? One reason is that this admission would imply that we cannot completely control our lives. If we are sinners, we need help, help from outside ourselves. And this is unacceptable to the majority of psychologists that I know. But more importantly, and at the risk of sounding overly simplistic, I believe that what really bothers non-Christian psychologists about terms like *sin* and *sinner* is that it strikes at basic self-pride. One of the most difficult things that any individual can do is to admit to himself what he is. This is so painful to most of us that we devise countless ways to avoid even thinking about who we are. Admitting to ourselves and others that we are sinners (and here I am talking about a mind-wrenching experience, not the smug, superficial confession that so often takes place) humbles us. One thing that modern psychologists value in themselves and others is pride. Without denying that pride in one's-self or in one's social group certainly can be a good thing, I am struck by the fact that in all my readings in the field of psychology I have frequently come upon authors who positively valued pride in both self and others, but I have seldom come upon non-Christian psychologists who highly valued humility, either in themselves or in their patients. Humility implies knowledge of one's sinfulness, and sinfulness is one thing that most psychologists deny (consciously or unconsciously) in themselves and others.

3. Most psychologists are intelligent, sophisticated people. In spite of this (or maybe *because* of it), psychologists are the same as any human in that they are sensitive to what other people think of them. They are particularly sensitive to what their *peers* think of them. Most psychologists, I think, have conditioned themselves to believe that if they are "religious" or "Christian", then their colleagues will look down on them. Believing in Christianity, so the reasoning goes, can be equated with believing in the literal truth of a fairy tale. Christianity is part of earlier life, when there was still a need to have some kind of myth to believe in. But now that we are mature and have achieved a more complete understanding of human nature, how can any rational adult possibly believe in an obvious fairy tale? And so the argument goes. But the point that I want to make is that many non-Christian psychologists will not even consider the possible truth of the Christian message because of the fear that their colleagues will laugh at them.

Psychologists are often hostile to Christianity because of their firmly held belief that man is totally responsible for his own fate.

The Christian Psychologist: Unique Problems

Much of what I have said previously can also be applied to psychologists who are Christian. For example, based on my own experience, I know that I have a strong tendency to worry so much about what my colleagues might think of me because I am a Christian, that I find myself never verbalizing my faith. Usually I content myself by saying that I will show by my lifestyle that I am a Christian. It is undeniably true, of course, that we witness to others by the quality of life that we lead. Often this is the most important witness we can give. But I think that this kind of reasoning (I will witness only through my behavior) is often used by Christian psychologists (and I *know* that it is used by me) as a "cop-out". By telling myself that I am witnessing to my colleagues or patients through my concern for them, my life style, and so on, I rather neatly clear myself of the responsibility to *talk* about Christ and Christianity.

I think that what I discussed in the previous paragraph accounts for another phenomenon I have observed among committed Christian psychologists. It seems to me that in general two things happen to a Christian psychologist professionally. If he works in a non-Christian setting (if you will, a hostile environment) there is a strong tendency for such psychologists to "submerge" their witness. That is, there is a tendency not to talk about one's faith to either colleagues or patients. This is not to say that such psychologists have "lost" their faith or that they are no longer Christians. But their overt, verbal witness is blunted, at least professionally. On the other hand, if a Christian psychologist does not do this, then another thing is likely to happen: he will work in a setting that is explicitly Christian. I wonder sometimes if this does not happen because it is so much easier (less embarrassing?) to function among others who believe as you do. In a Christian mental health agency, one does not have to defend his faith to his colleagues. The patients one sees are likely to have some kind of a Christian commitment before they come to you for counselling. Thus, talking about one's faith does not present the "problem" it presented in the non-Christian setting. Of course, I do not mean to imply that Christian psychologists become involved in a Christian setting only because they face fewer problems concerning their Christian commitment. This is certainly not the only motive, and in fact, it is probably not the main motive in many cases. But I think it is a motive we often obscure from ourselves.

One other thing might be mentioned about my observation that Christian psychologists either "submerge" their faith in a non-Christian setting or get into a professional setting that is explicitly Christian. A psychologist, particularly one who does psychotherapy,

I have seldom come upon non-Christian psychologists who highly valued humility, either in themselves or in their patients.

has to deal with what I would term "ultimate questions." When one is in a therapeutic encounter it is impossible to forget that essentially, whoever the individual you are counselling, you are dealing with questions that relate to the meaning of human existence. This is a problem that confronts a counselor more directly than individuals involved in other areas of scientific or professional endeavor. It is easier (and if it is not, I hope I will be corrected) for Christian chemists or physicists to divorce their work from their religious convictions. Their work and research can be conducted without constantly being reminded of the essential spiritual nature of the problems with which they have to deal. Speaking from my own experience, it is difficult for me to harmonize my belief in the reality of Christ with the fact that I may never deal directly with this reality in a psychotherapeutic encounter. There are many reasons that I can give for never dealing with this all-important aspect of human life (the patient is not coming to me for religious advice, to name one), yet I am always left with the gnawing feeling that I have not come to grips with either myself or my patient. Because of this feeling (which I presume other Christian counselors have experienced), I think that it is clear why it is cognitively much easier for psychologists to submerge their faith completely or return to a setting where it is "expected" that religious issues will be addressed directly. I often smile when I think that one of the reasons that I withdrew from a preseminary course in my undergraduate days was that I did not want to be put in a position where I would be forced to deal constantly with ultimate questions about human existence. So I became a clinical psychologist.

Conclusion

I realize that much of what I have said in this article has been based on my (rather limited) personal experience as a clinical psychologist, and as such is particularly susceptible to my biases and prejudices. It would be more helpful if I could close by giving answers to some of the issues I have raised. From a reading of this article it is painfully obvious to me how much further I have to grow before this can be done. I look forward to comments from others concerning their observations about some of the issues which I have addressed.

REFERENCES

[1]This anti-religious sentiment is illustrated graphically in Freud, S. *The Future of an Illusion*, Liveright Publishing Corp., New York, 1949 (1927).

[2]Ellis, A. The case against religion: a psychotherapist's view. *The Independent* (1962), October, 3-4.

[3]Toward the end of his life, Freud turned much of his attention to the study of religion. Two major works which followed *The Future of an Illusion, op cit.*, were *Civilization and its Discontents*, Cope and Smith, New York, 1930 and *New Introductory Lectures in Psychoanalysis*, Norton, New York, 1933 (1932). In these later works, Freud became even more outspoken against religion than he had been in the past.

[4]In *Escape from Freedom*, Holt, Rinehart, and Winston, New York, 1941, Erich Fromm discusses how religion has caused man to give up his freedom and responsibility.

[5]Skinner, B.F. *Beyond Freedom and Dignity*, Alfred Knopf, New York, 1972.

[6]Skinner, B.F. *op cit.* Another major work of Skinner involving his views on the future possibilities of man is his utopian novel, *Walden Two*, Macmillan, New York, 1948. In this novel Skinner presents a rather glowing picture of what human life can be if humans are given the proper conditioning experiences.

[7]Ellis, A. *op cit.* Two other works in which Ellis presents his arguments against religion are *Humanistic Psychotherapy*, McGraw-Hill, New York, 1973 and *Growth Through Reason*, Wilshire, North Hollywood, California, 1971. In the latter book, Ellis presents a verbatim transcript of a therapy session in which rational-emotive techniques are used to counteract the beliefs of a religious client.

[8]The most efficient means of achieving this self-understanding necessary for mental health being, or course, psychoanalysis.

[9]Menninger, K. *Whatever Became of Sin?* Hawthorn Books, New York, 1973.

In addition to the patient's trust, the ability of the physician to help the patient die comes from a part of his general function: the aspect of permission. . . . It is the physician who gives permission for the person, when he becomes ill, to stop and do battle in the service of his body. And, once health has returned, it is the physician who gives permission once again to get on with life without fear of or for the body. In the case of the dying, or the aged, based in trust, and in the service of the good death, the physician can give permission for the person to stop the battle for life. He can give permission to die.

Eric J. Cassell

"Permission to Die," in *The Dilemmas of Euthanasia*, J. A. Behnke and S. Bok, eds., Anchor Books/Doubleday 1975, p. 130

A Summary and Five Evaluations

An Analysis and Critique of Jay Adams' Theory of Counseling

JAMES A. OAKLAND

Graduate School of Psychology

Fuller Theological Seminary
Pasadena, California

AND

GERALD O. NORTH, ROSEMARY CAMILLERI, BRENT STENBERG,

GEORGE DANIEL VENABLE AND KENNETH W. BOWERS

In 1970 Jay E. Adams, Professor of Practical Theology at Westminster Theological Seminary, published what was to become a somewhat controversial book, *Competent to Counsel.* Many, including both psychologists and theologians, were at odds with some of Adams' presuppositions and therefore reluctant to endorse his counseling techniques. This is not to say that psychologists or theologians were of one mind (have they ever been?) in their view of Adams' book; but there were some who agreed and some who disagreed with him. Each had his or her own reasons for doing so.

The disparity among the members of each discipline is mentioned to point out that the issues are not clear cut. We will here attempt to clarify and critique some of Adams' major doctrines from both a psychological and theological point of view.

Presuppositional Approach

Adams takes what he calls a "presuppositional" approach to the establishment of his therapeutic techniques. He states in the introduction to *Competent to Counsel* (1970):

> The conclusions in this book are not based upon scientific findings. My method is presuppositional. I avowedly accept the inerrant Bible as the standard of all faith and practice. The Scriptures, therefore, are the basis, and contain the criteria by which I have sought to make every judgment. Two precautions must be suggested. First, I am aware that my interpretations and applications of Scripture are not infallible. Secondly, I do not wish to disregard science, but rather I welcome it as a useful adjunct for the purposes of illustrating, filling in generalizations with specifics, and challenging wrong human interpretations of Scripture, thereby forcing the student to restudy the Scriptures. (p. xxi)

Stressing the importance of clear presuppositions, Adams points to Cornelius Van Til of Westminster Theological Seminary as an authority. Van Til "has demonstrated that at bottom, all non-Christian systems demand autonomy for man, thereby seeking to dethrone God" (Adams, 1970, p. xxi). Adams notes that failure to state presuppositions explicitly often leads to misunderstandings in which one side criticizes the "error" of the other without a solid basis for such criticisms. He intends to leave no doubt as to the basic difference between his approach and that of many psychiatrists: "The serious difference is that Christian theologians have been willing to acknowledge their presuppositional faith, whereas psychiatrists often will not do so" (Adams, 1970, p. xxii).

Essentially, this "presuppositional approach" appears to mean that Scripture is taken by Adams as the ultimate authority by which he judges all else, including scientific conclusions drawn from empirical observation. He admits the possibility that scientific observation might cause him to re-examine his own interpretation of Scripture. However, he appears to say that if an *irresolvable* conflict were to arise between an interpretation of Scripture from which he was unwilling

to depart, and some empirical observation, he would disregard the empirical, assuming that the Bible is true and declining to disregard or reinterpret it.

> I want to alter any or all of what I have written provided that I can be sbown to be wrong Biblically. I am not interested in debate which moves off non-Christian suppositions, or debate based upon supposedly neutral, objective empirical data. All such evidence, in the end, is interpreted evidence. There is no such thing as brute uninterpreted fact. Data are collected and related and presented by *men*, all of whom are sinners and subject to the noetic effects of their sin. In God's world, all men are related to Him as covenant breakers or covenant keepers (in Christ). The judgments of unbelievers, therefore, are arrived at and presented from a point of view which attempts to divorce itself from God. Such judgments must be understood, weighed and examined in this light. I have attempted to re-examine counseling (suggestively, but not exhaustively) in a Biblical manner, and I ask, therefore, that my work shall be similarly criticized. (Adams, 1970, p. 269).

One might feel that the whole question of presuppositions is not an overly important one. However, with a look at the implications Adams draws from his presuppositional stance, the difference between traditional therapies and Adams' *nouthetic counseling* becomes apparent.

Adams states that the concept of mental illness was derived from the "medical model" on which psychiatry is based. O. Hobart Mowrer (1961, p. 60) has pointed out that the concept of mental illness has served to remove responsibility from the counselee. If a patient has an illness—say, Asian flu—he certainly cannot be blamed for his sickness. Instead, he is treated with compassion, understanding and sympathy, and must rely on expert help from the outside to make him well. In the same way, says Adams, if a counselee is mentally ill, he cannot be considered responsible for his behavior. Freudian thought is cited as the source of this approach, and Adams cites Mowrer and Szasz (1961) in support of his anti-Freudian campaign. He also cites research which indicates that as many people improve without psychoanalysis as with it. In addition, he relates several cases in which treating a counselee as sick actually seemed to exacerbate the problem. (Adams, 1970, pp32-35).

Adams endorses Mowrer's alternative to the medical model:

> Mowrer . . . said that the "patient's" problems are moral, not medical. He suffers from real guilt, not guilt feelings (false guilt). The basic irregularity is not emotional, but behavioral. He is not a victim of his conscience, but a violator of it. He must stop blaming others and accept responsibility for his own poor behavior. Problems may be solved, not by ventilation of feelings, but rather by confession of sin (Adams, 1970, p. xvii).

In Adams' opinion, the primary reason that institutionalized people have been separated from the world is not that they are ill but that they have simply failed to meet life's problems. He believes that the mental health viewpoint is

> plainly wrong in removing responsibility from the sinner by locating the source of his . . . problem in constitutional or social factors over which he has no control. Instead, God's Word said that the source of these problems lay in the depravity of man's fallen human nature (Adams, 1970, p. xiv).

Problems Are the Result of Sin

In other words, man's problems are the result of behavioral sin rather than emotional sickness (unless organic etiology, hereditary debility or toxic disorders can be proven). From this Adams infers "that qualified Christian counselors properly trained in the Scriptures are competent to counsel—more competent than psychiatrists or anyone else" (Adams, 1970, p. 18). "Instead of excuse-making or blameshifting, nouthetic counseling advocates the assumption of responsibility and blame, the admission of guilt, the confession of sin, and the seeking of forgiveness in Christ" (Adams, 1970, p. 55).

Not only are non-Christians unable to recognize sin, says Adams, but they have no access to truth; or, since their understanding of truth is not couched in Christian subcultural terms, they may be disregarded as competent counselors. Speaking of the non-Christian psychiatrist, he asks:

> How is it that Christian ministers refer parishioners who lack self-control to a psychiatrist who has never been able to discover the secret of self-control in his own life? Outwardly he may appear calm and assured, mature, patient, and even suave. Can this be his actual inward condition if he does not know Jesus Christ? Can he have this fruit of the Spirit apart from the Spirit? (Adams, 1970, p. 21).

In support of his view Adams cites examples of persons using "mental illness" to cover up sin either by allowing an outlet for selfish desires or escape from punishment (Adams, 1970, pp. 29-35).

According to Adams, Scripture mentions plainly both organic problems and those stemming from sinful attitudes and behavior. However, nowhere do the Scriptures mention anything which could be construed in the modern sense of "mental illness" (Adams, 1970, p. 29). Thus, he assumes that sin, demonic activity and organic dysfunction account for all so-called mental illness.

A Dim View of Psychiatry and Psychology

As a result of his premises, Adams takes a dim view of both psychiatry and psychology (cf. chart reproduced below, including representatives of both professions). Accepting his assumption as Biblical, then, ". . . there is no warrant for acknowledging the existence of a separate and distinct discipline called psychiatry. . . . This self-appointed caste came into existence with the broadening of the medical umbrella to include inorganic illness (whatever that means)" (Adams, 1973, p. 9).

Adams agrees that the psychiatrist should be actively involved with personal problems that have an organic basis, but when the psychiatrist deals in the area of non-organic personal problems he has overstepped his bounds. Since sin is at the root of these problems, counseling is the job of the minister.

In explaining his rules for counseling, he stresses that "counseling methodology necessarily must grow out of and always be appropriate to the Biblical view of God, Man and Creation" (Adams, 1973, p. 72). Thus, in choosing how one counsels, it is important to examine the premises of any technique in the light of the Bible. If the theory is not Biblical, no technique derived from it is appropriate for use by the Christian

counselor, decrees Adams. In the following chart (Adams, 1973, p. 73), he sums up his interpretation and evaluation of psychological theories:

According to Adams, man's problems are the result of behavioral sin rather than emotional sickness.

General Approach	*Specific Type*	*Man's Problem*	*Solution*
Expert Knowledge	Freudian	Poor Socialization	Resocialization by Expert
	Skinnerian	Environmental Conditioning	Reconditioning by Expert
Common Knowledge	Rogerian	Failure to Live up to Potential	Resources in Self
	Integrity Groups	Bad Behavior toward Others	Resources in Self and Group

According to Adams, the first approach to counseling assumes "expert knowledge". Although Freudian and Skinnerian psychologies are radically different in their approach, both assume that individual problems are the result of factors beyond the person's control. The result is that:

> since the counselee's problem arose from outside, the counselee himself is virtually passive. The assumption that a man is not responsible for his condition leads to the notion that he is not responsible for getting himself out of that condition (Adams, 1973, p. 76).

Thus it takes the expert to bring about the necessary changes. Adams denounces this doctrine, claiming that it deprives the individual of responsibility for his actions.

The second approach to counseling is based upon what Adams refers to as "common knowledge". Here, answers to life's problems can be found through resources within oneself or in the context of a group. Rogerian counseling (quite popular among ministers, says Adams) takes the view that there is no need for the expert; the role of the counselor is that of a mirror, letting the counselee reflect his problems, clarify his thinking and find his own answers. The Integrity Groups, originated by Adams' mentor, O. H. Mowrer, pools the resources of a group to help solve personal problems. There is confession of sin (sin is defined as wrongdoing to others) to relieve guilt. Adams sees this as inadequate, however, because sin (which *he* defines as a broken relationship with God) is not confronted. Adams admits that the common knowledge approach may contain some elements of truth, but he rejects it for its ultimate reliance on the goodness and self-sufficiency of man.

Nouthetic Counseling

Adams' Christian counseling, when charted with the theories above, looks like this:

General Approach	*Specific Type*	*Man's Problem*	*Solution*
Divine Knowledge	Christian	Sin Against God	Spirit's Resources in Word

Christian counseling, says Adams, is based on the Scriptures. Exegeting II Timothy 3:15-17, he finds four uses of the Bible which are applicable to counseling: to teach (i.e., set the norms for faith and life); to reprove (i.e., rebuke erring Christians effectively so that the rebuke brings a conviction of wrongdoing); to correct (to set a Christian straight in the way of righteousness); and to disciple in righteousness (to use the Word to continue to work with an individual in his daily life, constructively reshaping life patterns).

Adams calls his the only Scripture-based counseling approach, and names it "nouthetic counseling"—an epithet based on the Greek word Paul uses to describe his work with others. Adams sees in the word *nouthesis* three components which comprise the framework of nouthetic counseling. The first is the recognition of behaviors in another's life that need, from a Biblical viewpoint, to be changed. The second is the responsibility of the counselor to confront the other verbally and privately with the appropriate Scripture to change

his incorrect behavior. The third element of nouthetic counseling is the motive behind the confrontation: the wish to heal the troubled person's life.

Adams summarizes the result of successful nouthetic counseling:

> ". . . in its fullest meaning, success is the attainment of Biblical changes desired, together with an understanding with the counselee of how this change was effected, how to avoid falling into similar sinful patterns in the future, and what to do if, indeed, he should do so" (Adams, 1970, p. 57).

Who Should Counsel

Since sin is the root of personal problems, Adams makes it clear that counseling is the task of the Christian. He finds in Colossians and Romans support for his assertion that nouthetic confrontation is the responsibility of every member of the Church. Thus every Christian, as he becomes grounded in the Scriptures and mature in Christ, must be actively involved in counseling other Christians.

Yet nouthetic counseling, says Adams, is particularly the work of the clergy. In fact, to Adams, one who is interested in being a counselor should seek a strong seminary education, *not* formal psychological training. It is his conviction that the only legitimate way to pursue the calling of counselor is through the ministry:

> . . . the minister has the opportunity to do the preventive work that preaching and regular pastoral care provides. The counselor outside of the church has no opportunity to mold a congregation of people into an harmonious loving body into which counselees may be assimilated and from which they may receive significant help. And, perhaps most important of all, the process of discipline, which is of utmost significance in Scriptural counseling, is not available to the Christian counselor who operates outside the Church. (Adams, 1973, pp. 12-13).
>
> The effective counselor, therefore, does not need a degree in psychology, but rather an extensive knowledge of the Bible, divine wisdom, genuine concern for others, and the gifts of faith and hope. He is a spiritual man who relies not on his own resources but on the Holy Spirit's guidance. Indeed, Adams points out, any Christian counseling situation involves at least three persons. "In truly Biblical counseling . . . where a counselor and a counselee meet in the name of Jesus Christ, they may expect the very presence of Christ as counselor-in-charge" (Adams, 1973, p. 4).

In summary:

> I am concerned here to make but two observations: (a) the psychiatrist should return to the practice of medicine, which is his only legitimate sphere of activity; (2) the minister should return to the God-given work from which he was ousted (and which, in many instances, he too willingly abandoned) (Adams, 1973, p. 10).

The Counselor Client-Relationship

> It is never adequate to talk about problems. All talk in counseling must be oriented toward Biblical solutions. That is why it is essential to direct the entire session toward its climax—the commitment of the counselee to his homework task(s) for the next week. (Adams, 1973, p. 242).

In traditional psychotherapy, the therapist-patient relationship during the weekly sessions constitutes the primary focus of therapy. Adams quotes Algier on this: " 'The relationship of the analyst and the patient and the complex communication between them is understood as the most crucial data in the therapy.' " (Adams, 1973, p. 306 n.11). Adams repudiates this view. In his counseling technique, the primary functions of the counselor are collection of data, pointing out to the counselee how he has been unbiblical in dealing with problems, eliciting repentance, and building into the counselee's life a structure to end sinful patterns and replace them with Biblical patterns of living. Hence the relationship of the counselor and counselee is not a crucial aspect of the counseling situation except insofar as it is one relationship among many.

Probably nowhere is this difference in mentality more evident than in Adams' insistence that it is *ministers* who are the most competent to counsel—and that by virtue of their theological training (Adams, 1970, 1972, 1973).

An implication of Adams' view that all problems are either organic or spiritual is that no one can really be helped fundamentally unless he is healed physically or repents of his sin and is forgiven by Christ.

Techniques of Counseling

Adams' counseling techniques are based on his conception of the relationship between behavior and feelings. Traditional psychotherapies, he asserts, operate from the (false) conception that behavior is a consequence of feelings: one "behaves badly" because he "feels badly." On the other hand, Adams states, the Bible (and nouthetic counselors) operate from the premise that feelings flow from behavior: one "feels good" (or bad) because he "behaves well" (or badly). Consequently, behind all negative feelings there lies wrong, sinful behavior. The way to deal with a client's feelings is to discover the behavior which is antecedent to the feelings and deal with the behavior.

If the emphasis of counseling is upon the week between sessions, then the emphasis of technique is upon ways of altering the inter-session behavior. The key concept in Adams' system is *homework* (Adams, 1973, chapters 27-29). Adams lists among the benefits of assigning counselees homework: (1) setting a pattern for expectation of change; (2) clarifying expectations; (3) enabling the counselor to do more counseling; (4) keeping counselees from becoming dependent on the counselor; (5) enabling one to gauge progress; (6) allowing the counselor to deal with problems under controlled conditions (Adams, 1973, pp. 301ff).

In a typical counseling situation, the nouthetic counselor spends the first several sessions collecting data and designing home assignments to help the client dehabituate sinful behavior patterns and rehabituate Biblical ones. Adams (1970) speaks of three levels of problems:

1. Presentation problems (what the client says the problem is, e.g., "I'm depressed"—often presented as a cause when really an effect);

2. Performance problems (the client's antecedent behavior, e.g., "I haven't been much of a wife lately"—often presented as an effect when really a cause);

3. Preconditioning problems (client's general pre-

disposition, e.g., "I avoid responsibility whenever the going gets rough").

Adams (1973) discusses techniques for digging out deeper problems (preconditioning problems) than those which the client presents. Of course it is up to the counselor to decide what the deepest problems truly are.

The dehabituation-rehabituation dynamic is the key principle upon which home assignments are based: to change sinful behavior patterns is not simply a matter of ending the bad behavior ("putting off" or dehabituation) but also of adopting new, Biblical behaviors ("putting on" or rehabituation). Adams (1973) catalogs numerous specific Biblical "dual injunctions" to support his dehabituation-rehabituation principle.

Summary

The counselor's job is to discern sinful behavior patterns, discover the appropriate Biblical put-off/put-on principle(s) and structure the counselee's week (via homework) to instigate the process of putting off the sinful behavior and putting on the Biblical behavior. Adams would properly insist that counseling is far more complex and involved than a simple paragraph like this indicates (witness the 450-plus pages of *The Christian Counselor's Manual* (1973)), but would maintain that his technique is far simpler than the psychotherapies of Freud, Rogers, Mowrer, *et al.* While he stands firmly for his own very distinctive brand of counseling, he remarked during a course attended by one of the present authors in 1974 that the nouthetic counselor is free to be Rogerian or nondirective when he desires, or to use *any* technique not inconsistent with Biblical presuppositions.

EVALUATION I

Brent Stenberg

It will become evident that I share Jay Adams' premise that counseling should be based upon the Word of God. Nevertheless I question some of his deductions from that premise.

Adams' premise that feelings flow from behavior and that to change feelings one must change behavior, leads to an authoritarian, behavior-oriented brand of Christianity.

First and most essentially, his system is not necessarily built on Scripture *per se*, but rather on *his* interpretations of various Scripture passages. In a number of cases he gives his interpretation of a certain passage and then either ignores the fact that there may be others, or casually announces that they are wrong. Based upon his interpretation, he makes authoritative statements as to what the Christian counselor should believe. His tone is rigid and often argumentative. He instructs young pastors to base their counseling upon the word of God—yet if their exegesis does not yield Adams' own conclusions, it contradicts principles for which he claims divine mandate.

For example, Adams believes that the only legitimate career counselor is a minister. He points out that it is the task of all Christians to counsel one another, but adds, "yet, not all Christians have been solemnly set aside to the work of 'nouthetically confronting every man and teaching every man' as the Christian minister has" (Adams, 1973, p. 12). He goes on to conclude that

> There is no indication in the Scriptures that anyone but those who have been so recognized should undertake the work of counseling or proclamation of the Word officially (e.g., as an office, work, or life calling). This means that persons with a life calling to do counseling ought to prepare for the work of the ministry and seek ordination, since God describes a life-calling to counseling as the life-calling of a minister(Adams 1973, p. 12).

Here, as elsewhere, Adams takes his conclusions to be divine mandate or authoritative fact, letting his own assumptions fill in where Scripture does not speak. He implies that it is God's will for anyone preparing to be a counselor to become an ordained minister and appeals to Colossians 1:28 for support. A careful reading of that text, however, suggests that the purpose of the passage is *not* to define *who* should counsel, but rather to describe the two-fold task of the minister—a task which does include counseling. The text does not say that others should not counsel, as Adams claims. In fact, the implications of his interpretation of this Scripture include:

1. Barring women from professional counseling,
2. Barring Christians from the ranks of professtonal psychology, and
3. Excluding from the outreach of Christian counseling those who are not willing to come to a minister for help.

In short, I stand with Jay Adams when he says that the Christian counselor should be grounded in the Scriptures, but, as a student receiving both theological and psychological training, I find that there are a number of psychological skills essential to my development as a sensitive counselor. My general impression is that Jay Adams presents his system of nouthetic counseling as *the* way of the Christian counselor by making some of his opinions appear to be authoritative fact. I think it is a contribution to the field of Christian psychology, but must not be the final word.

EVALUATION II

George Daniel Venable

Adams' effort to be guided by Scripture as he counsels appears to have been fruitful in that he has developed some effective counseling techniques. A typical example might be his homework assignments, which place the responsibility of therapy on the counselee and the focus of therapy on the counselee's daily behavior. For many types of problems his approach may be expected to succeed if the personalities of the counselor and the counselee are amenable to a highly directive approach.

While we affirm with Adams the inerrancy of the "Bible as the standard of all faith and practice" we question his conception of this inerrancy. Adams appears to be saying that he would defend his interpretation of Scripture in an *irresolvable* conflict between it and some empirical, scientific or historical observation. We question his *use* of Scripture as the authority by which all else is to be judged, and his demand that any arguments against his theories be advanced on Biblical grounds only. If Biblical truth can be arrived at only by interpretation, and we must also interpret empirical fact, how can an interpretation of Scripture be given a position of higher authority than an interpretation of empirical fact? Adams would never place interpretations of empirical fact over Scripture, which he admits must also be interpreted.

Nevertheless, the historicity of Scripture is something we are able to use in order to rationally argue for the truth of Scripture. If we rely on the interpretation of historical (empirical) facts to arrive at our belief in the truth of the Bible, then it is illegitimate to place the Bible above that which was used to support its truth. To do so would be to climb the empirical ladder to the inerrancy of the Scriptures and then pull it up after us, as though it were then invalid, or we were afraid it might be used by others to attack our position. To say the least, this is not intellectual honesty.

Adams also assumes that the Bible was meant to be our inerrant guide not only in faith and practice but in science, history and philosophy. As we understand the purpose of Scripture, on the other hand, it is intended to reveal God's relationship to humans, and to tell us how He will reconcile us to Himself. In order to accomplish this purpose, God has revealed Himself in Scripture. However, not all statements in the Bible are revelational in nature. The revelational statements we consider to be true, but the nonrevelational statements are empirical in nature and fall outside the question of Scriptural inerrancy as it applies to revelation. Examples of these nonrevelational statements are the fact that Emmaus was about seven miles from Jerusalem (Luke 24:13), that the emperor Claudius commanded all the Jews to leave Rome (Acts 18:2), or that "all streams run to the sea, but the sea is not full" (Ecclesiastes 1:7). Thus, statements like the one Jesus made about the mustard seed being the smallest of seeds need not be scientifically true. They are incorporated in Scripture in order to enable revelational truth to be communicated, but they are not part of that revelational truth.

If this is the case, we are left by Him to explore His world by empirical observation and careful thought . . . and perhaps we should pay attention to psychologists when they have responsibly observed and carefully thought about effective therapeutic techniques.

Another point of contention arises over the existence of "mental illness" under the medical model. We should certainly look more carefully at problems before we remove responsibility from the individual and label him or her mentally ill. This is especially important in the less severe disturbances that the pastor might often encounter in which there is little possibility of organic dysfunction. The backbone of Adams' argument lies in the belief that humans have a physical body which can become ill, and a spiritual (moral) nature which can also be perverted, but nothing to which we can point directly and label "mental" or "mind," which might be disturbed. Adams would say that "mental" processes are really tied to physiological function, and that emotions are linked to the spiritual or moral character (though emotions may be affected by chemical imbalance or organic disorlers). This leaves nothing to which we might attach the concept of mind.

Is Adams really ready to say that the mind is nothing more than a conglomeration of physiological, biochemical processes? Is there sufficient evidence to warrant either this view or an opposing view? On the other hand, if there is indeed a mind as unique to man as his physical and spiritual aspects, why could it not be subject to disruptions and disorders as are man's physical and moral sides?

An implication of Adams' view that all problems are either organic or spiritual is that no one can really be helped fundamentally unless he is healed physically or repents of his sin and is forgiven by Christ. Physical healing does not necessarily involve a presentation of the Gospel, or Biblical exhortation and guidance; but nouthetic counseling involves all of these. That is fine for the Christian counselee or the person who is at least interested in spiritual matters. However, the one who does not accept Scripture as true and authoritative and is not interested in God might still be helped with his psychological probems by counseling without the necessity of evangelism. It seems to me somewhat offensive to impose one's beliefs upon a counselee by making spiritual demands in which he is not interested. I would still want to help that person but would also want to honor his God-given right to reject God. To do this I might have to incorporate other techniques than Adams' nouthetic counseling.

Adams infers that the non-Christian counselor cannot help his clients because he himself is torn up inside. Since he does not have the Holy Spirit, Adams infers that no matter what his appearance, he must be disturbed inside. But do we really have any basis at all for comparing Christians and non-Christians in this manner? Many Christians are far more disturbed than many non-Christians. Instead of making this comparison, we should admit that we each start at different places, and that the only salient (and, indeed, askable) question is not whether one person is better than another because he is a Christian, but rather whether he is better than he himself would be if he were not saved. Thus the reality that some non-Christians are more loving, kind, generous, etc., than some Christians is not something from which we must hide in embarrassment.

Admittedly, there is at least one problem with which the non-Christian counselor cannot by himself deal effectively: that of objective guilt (not guilt feelings) on the part of the counselee. Secular therapists have only two ways of dealing with this guilt, neither of which actually removes it. They can either deny the existence of moral standards and thus convince the counselee that he is not really guilty, or they can exhort the counselee to admit imperfection and live with mistakes. The latter is probably more acceptable than the former, but even so, it represents a case in which the Holy Spirit must work in spite of or without the conscious aid of the non-Christian therapist if salvation from guilt is to be realized. Nevertheless, to say with Adams that the client of a non-Christian counselor *cannot* be helped is to assert that the Holy Spirit is helpless to effect Grace except through ordained ministers.

EVALUATION III

Kenneth W. Bowers

Adams' approach to traditional schools of psychotherapy is very judgmental and less than informed.

The 328 pages of counselling techniques that Adams presents in Part III of *The Christian Counselor's Manual* are very concrete and pragmatic. They follow systematically from his *premises*, so that anyone who accepts his premises would find a wealth of good material for counseling. I emphasize premises because, while the techniques follow therefrom, it is the premises that are open to question.

John Calvin said that man does not know the thousandth part of the sin that clings to his soul. Luther knew that there is ". . . something much more drastically wrong with man than any particular list of offenses which can be enumerated, confessed, and forgiven" (Bainton, 1950, p. 55), and yet he was disconcerted to realize that ". . . some of man's misdemeanors are not even recognized, let alone remembered" (*ibid*). Both St. Paul and St. Francis of Assisi asserted that they were the greatest sinners of all. Yet Adams blithely asserts, ". . . to have good days, one must do good deeds" (Adams, 1970, p. 94). He goes on to state that no one is saved by good deeds, but that good deeds do lead to good days. How can Adams be so confident in his ability to sift through the morass of sin in any person's life to discover the operant sin(s) antecedent to the person's bad feelings?

When a person is "in touch" with himself or herself—with the unconscious inner motivations, the true nature, the fallen creatureness—he or she realizes that behavior is the tip of the iceberg of a sinful, corrupt being. But the *Good News* of the Gospel is that "There is therefore now *no condemnation* to those who are in Christ Jesus" (Romans 8:1). Biblically, bad feelings are not a consequence of bad behavior, but a consequence of man's failure to accept the forgiveness God has already given him—even as the father had already forgiven his prodigal son before he returned. Forgiveness in turn becomes the motivation—the proper motivation—to obedience.

The task of the nouthetic counselor is to discover sinful behavior which is producing bad feelings. But any list of sinful behavior patterns—whether it contains 1, 10, 100, or 1,000 items—is going to be incomplete, and hence there will be remnants of bad feelings. Nouthetic counseling is a dead-end street: it demands constant supervision and introspection of one's life for the appearance of any sinfulness. But will this produce the spontaneous joy and peace Christ spoke of when he said, "If the Son shall make you free, you shall be free indeed"? Or of which Paul spoke: "It is for freedom that Christ has set you free" and "There is therefore now no condemnation to those who are in Christ Jesus"?

I am not "for" sin, nor do I advocate loose morality. With Tournier, I would say, ". . . those who are the most severe with themselves are the ones who have the most serene confidence in divine forgiveness" (Tournier, 1962, p. 160). Bad feelings result, as one minister put it, from "forgettin' you're forgiven"; good behavior results as a response to divine forgiveness. In nouthetic counseling, as long as there is one more sin (and there always is) there will be bad feelings. Yet Paul could write that he was ". . . sorrowful, yet always rejoicing."

In a truly Christian psychotherapy, the primary function of the counselor may be to demonstrate in his relationship to the client the kind of unconditional love that the latter may never before have experienced. A good number of people who go for psychotherapy are people who are unable to relate meaningfully and/or people who have never known unconditional love. These people need models to help them understand and accept God's love and forgiveness.

The hallmark of nouthetic counseling (and that which Adams claims is unique to his technique) is responsibility: the client is responsible for his or her behavior. But if Luther is correct, must we not add that the counselee is responsible for behavior *of which he or she is aware?* Calvin is responsible for that thousandth part of the sin that clings to his soul; Luther is responsible for that which can be enumerated. The rest falls totally under the domain of God's grace and forgiveness.

Adams is incorrect first in falsely characterizing all non-nouthetic counseling as denying responsibility, and second in extending a person's responsibility (and therefore guilt and bad feelings) to things of which the person is not even aware—a function exercised in New Testament times by the scribes and the Pharisees. Tournier rightly observes that "however carefully and candidly a man examines himself today, he will not find what God will awaken in him tomorrow" (Tournier, 1957, p. 177).

Adams' premise—that feelings flow from behavior and that to change feelings one must change behavior —leads to an authoritarian, behavior-oriented brand of Christianity antithetical to the joy of forgiveness and the assertion that "if the Son shall make you free, you shall be free indeed."

EVALUATION IV

Gerald O. North

Jay Adams traces the behavioral ills of America to Freudian theory and practice. He suggests that Freudianism be credited with one achievement: its leading role in the collapse of responsibility in modern American society. Psychoanalytic thought, he says, is responsible for the murderer no longer being held responsible for his act, for the "he couldn't help it" syndrome. Adams gives the further impression that psychoanalysis is rarely helpful. He states,

> Freudian psychoanalysis turns out to be an archeological expedition back into the past, in which a search is made for others on whom to pin the blame for the patient's behavior. The fundamental idea is to find out how others have wronged him. (Adams, 1970, p. 6)

Such an overgeneralization does not take into consideration Freud's own writings.

Freud (1924) stated that the process of psychoanalysis cannot be demonstrated because of the nature of the dialogue which constitutes analysis itself. Thus, unless one has been through the process, one can only learn about psychoanalysis by hearsay. It appears that Adams is in the position of knowing only by hearsay, and exhibits his lack of understanding and his insensitivity to the subject matter in his attempt to build a case for his own brand of mental-spiritual care.

Adams suggests that those involved in psychoanalysis (he refers to psychiatrists) boast of expert knowledge, and that the process includes the analyst resocializing the patient. He is correct in saying that analysts do have expert knowledge, for without such knowledge of the workings of the human mind and emotions, the analyst would not be able to deal appropriately with the process of psychoanalysis. Again, however, it appears that Adams becomes entangled in the snare of hearsay, for in the process of psychoanalysis it is the joint efforts of both analyst and analysand—catalyzed by the expert knowledge of the analyst—that brings about the necessary changes. Thus it is not, as Adams suggests, a mere matter of the analyst "resocializing" the patient.

In short, Adams argues against one authoritative system while attempting to establish another system with equal or increased authoritarianism. His schema involving the Scriptures as the basis for theory and practice is very narrowly based on a particular dogma. He apparently judges as to how Scripture should be interpreted, for throughout *Competent to Counsel* he refutes interpretations by other authors and gives what he understands to be the correct interpretation. He contends that his views of counseling are derived from divine knowledge given by God through Scripture. He suggests that his system of counseling is complex, but not as complex as Freud's. His claim is that the training needed for counseling is a seminary education (probably one of evangelical persuasion) and an expert knowledge of Scripture.

It appears that his system is, indeed, complex and that even a seminary education willl not qualify one for involvement in what he refers to as "nouthetic counseling". In order to be fully qualified, apparently one must be well versed in Adams' theory.

He contends that nouthetic counseling is the Biblical form of counseling and thus he rejects the pastoral counseling movement completely. He speaks against Carroll Wise's position which allows a person to work out his own destiny and he criticizes Wise for being non-judgmental in the counseling situation. Adams contends that the nouthetic counselor must be judgmental and must help a person decide his destiny. (This position of Adams' is ironic in view of his criticism of psychoanalytic "expert knowledge" and "authoritarian" resocialization. It appears that Adams is willing to accept in his own system what he criticizes in Freud's.)

He apparently agrees in part with Draper (1970) who states that although there might be exceptions to the rule, the basic personality structure is not altered through conversion any more than physiology or anatomy is altered. However, instead of speaking of personality structure, Adams refers to the sin in one's life which needs to be confessed in order for the person to change. This counseling is apparently a post-conversion experience, as he states that 75 percent of his counselees are Christians. Perhaps the simplistic approach of Adams' complex system becomes most evident at this point. Apparently what Draper refers to as the difficulties of changing one's personality, Adams chalks up to "sin", holding that if one will heed the "advice" of the nouthetic counselor, one's life will change. This approach implies that someone else knows better than the person what is in fact best for the person's life. Rather than comparing himself and his system with others in the psychotherapeutic community, Adams might do well to compare himself with the field of law where advice giving and judgmental decisions are acceptable.

Adams' view of Scripture and his approach to Christianity apparently limit his scope of influence and effectiveness, for the evangelical wing of the Christian community is of minority proportions. Like Freud, he works with a select clientele, but deals with the sort of issues emphasized by Glasser (1965) and the "reality therapy" proponents, only with a completely evangelical emphasis which does not allow for choice, but appears to tolerate only obedience to the advice of those who claim the "nouthetic counseling" stance.

Adams' approach to traditional schools of psychotherapy is very judgmental and less than informed. It appears that he protests too loudly and too long in proportion to what he has to offer in return. His tone of written communication is angry, provoking the reader to wonder why the immense amount of negativism and hostility. His statement that pastors with a seminary education are better qualified to counsel people than any other mental health professionals is presumptuous, as is his clear implication that every difficulty or problem in life is spiritual and based on the sin of the one who feels the problem and seeks help.

Perhaps the irony of a book of this type is that those who are attacked will probably never read it; and the tragedy is that those evangelical ministers who do read it will be somewhat misled, believing that they can thereby deal with all the problems of human living. Adams suggests that if he can be shown that he is wrong Biblically, then he will change his stance, although he follows that statement by reaffirming his basic convictions. There is a flavor to Adams' words in the conclusion of *Competent to Counsel* which suggests that he desires to remain on the cutting edge of experience and growth. For this he must be commended.

EVALUATION V

Rosemary Camilleri

Competent to Counsel is a fundamentally frightened book.

Here we find no joy in human discoveries, no acknowledgement that all truth is God's truth, no rejoicing in the mysterious ways of the Spirit with a human heart. Rather we are shown frightening visions of atheistic psychiatry taking over the field of Christian counseling. Jay Adams insists—somewhat shrilly—that only trained evangelical pastors are competent to deal

with human problems, and that all others provide only menacingly false solutions.

Adams claims Biblical sanction for his "correct" approach to the alleviation of human distress. He challenges all comers to fault him on the only authority he will accept: the canon of the Old and New Testaments. Indeed, Adams' Bible is worth examining. It seems to be a frightening tome, supporting such principles as:

1. Bizarre behavior is sin. If you behave in a way that Adams regards as bizarre, you must have learned it in order to cover up your deviant behavior, which is the root of all your problems. To use Adams' example, if you are a college student who prefers making sets for the school play to studying, and you indulge that preference, you will have no peace until you admit to your parents the sin of academic failure. If terror of their response brings on "bizarre" behavior, that's just one more sin. And woe unto you if you suggest to your Competent Counselor that there may be more to the healthy Christian life than fulfilling your parents' expectations.

2. A cured person is one who can be induced to confess that his/her problem stems exclusively from his/her own sinful behavior. Sins of the fathers, we learn, are never visited on the children: the children themselves are the problem.

3. All persons are alike. Adams hold out Christian confession and forgiveness as a panacea for all people and all problems. While I agree that "all have sinned", to deduce from this that confession is the only solution to all personal problems is like saying that all men have two eyes and therefore all doctors should be opthalmologists.

4. No truth can be learned from the researches of one who is irreligious (e.g., Freud). Never mind Paul's sermon at Athens or Christ's illustrations from contemporary culture. If it's not by a Christian, it's a lie.

5. All problems are behavioral. What else can one infer from case history after case history where, for instance, "Mary's problem was the sin of adultery"? The bottom line is always an act or a failure to act; confession thereof is always the final solution. The counselor is not to ask "why?" but rather "what?" (Adams, 1970, p. 54). He would not dream of wondering what made Mary commit adultery. He knows already; it's just her sinful nature.

6. The Holy Spirit, Who alone can heal, acts only through the Christian counselor, never the psychiatrist. Apparently things have changed radically since Christ told Nicodemus that "the wind bloweth where it listeth, and you hear the sound thereof, but know not whence it cometh, nor whither it goeth . . . so is every one that is born of the Spirit." Adams knows exactly whence It cometh and whither It goeth.

7. Only members of the male sex are competent to counsel. Since Adams teaches at a seminary that does not prepare women for ordination, and since only pastors are Biblically-sanctioned counselors . . .

I could go on with this list. But a theme will be clear: the Competent Counselor is overwhelmingly concerned with sin.

Sin is to be "yanked" (Adams, 1970, p. 174) out of every counselee. For every page where Adams mentions joy (the joy of having confessed sin) there are 75 pages of guilt, confrontation, and humiliation. This is the handbook of the frightened evangelical: frightened of psychological study, psychiatric practice, and —Christ or no Christ—frightened of sin.

Now, I hold no brief for the goodness of man. I have never had much use for humanism in either philosophy or psychiatry. But Adams is, ironically, too easy on his people: with all his talk of responsibility, he deprives them of *real* responsibility. They are plastic adulterers, instantly mended by confession and good deeds. They have only to stop masturbating to know true contentment. Those to whom confession is a defense to hide their deeper anguish (am I the only one?) are still, according to Adams, fully cured. Those whose "sins" are transgressions of others' (the therapist's?) expectations are likewise "cured" as soon as they "confess". The power of humiliation and homework will save them—not the power of love. "You can't say 'can't' " he tells them (Adams, 1970, p. 133); if they fail it's their own fault.

The kind of Christian transformation so movingly portrayed by Dostoevski in *Crime and Punishment's* final pages is here obliterated in quick-cure anecdotes and state hospital release statistics produced by "responsibility" programs. And one suspects that if the Prodigal Son were Adams' boy, there might be a good long humiliation/confession session before that celebrated dinner; none of this "seeing him afar off and rushing to meet him" nonsense.

In summary, while I am happy to credit rumors of Adams' sensitivity and skill as a personal counselor, they do not justify the publication of such dangerous half-truths as are contained in *Competent to Counsel.* I can only hope and believe that he (and other Christian counselors) are indeed susceptible to the "still small voice" speaking louder than all of his theories and bidding him to be respectful in the presence of a unique and precious human being.

Adams, Jay. *Competent to Counsel.* Grand Rapids: Baker Book House, 1970.

———, *The Big Umbrella.* Grand Rapids: Baker Book House, 1972.

———, *The Christian Counselor's Manual.* Grand Rapids: Baker Book House, 1973.

Bainton, Roland. *Here I Stand.* New York: Abingdon, 1950.

Draper, Edgar. *Psychiatry and Pastoral Care.* Philadelphia: Fortress Press, 1970.

Freud, Sigmund. *A General Introduction to Psychoanalysis.* Liveright Publishing Corp., 1924.

Glasser, William. *Reality Therapy.* New York: Harper & Row, 1965.

Mowrer, O.H. *The Crisis in Psychiatry and Religion.* Princeton: Van Nostrand, 1961.

Szasz, *The Myth of Mental Illness.* New York: Hoeber-Harper 1961.

Tournier, Paul. *Guilt and Grace.* London: Hodder & Stoughton, 1962.

———, *The Meaning of Persons.* New York: Harper, 1957.

The Evolution of Social Evolution

RUSSELL HEDDENDORF

Department of Sociology

Geneva College
Beaver Falls, Pennsylvania

There is a tendency in American intellectual circles to identify evolutionary thought with biological evolution. What is ignored is the existence of social evolution as a distinct and equally significant problem area. The roots of social evolution predate the development of biological evolution and reach into our own day. In between, the impact made on intellectual thought was great indeed.

In fact, it is the curious phenomenon of a resurrected evolutionism in sociology today which is so startling. Earlier generations assumed the coffin lid was securely sealed, but we find the old evolutionary spirits alive and decked out in new attire. Perhaps it is nothing more than a fad which has kicked the old bones into life. Indeed, current sociological theory is so parched that even ancient wells provide some apparent refreshment. But the implications of biological determination on the social development of man is so strong that it deserves further study. Before raising the question, however, it is necessary to consider the earlier forms of social evolution and the problems they produced.

The Roots of Social Evolution

It was in the period of the French Enlightenment that social thinkers first became interested in the possibility that social change was directed by a lawful order. August Comte, in particular, not only sired sociology but also the idea that society developed from some simple to more complex forms. Progress was the key to such change, whether it was exhibited in reason, morals, or social organization.

In its more mature form, however, we must turn to the work of Herbert Spencer who expressed his views some years before 1859, that critical date usually associated with the theory of biological evolution. Indeed, for Spencer, sociology was the study of social evolution.[1] This is not to say that Spencer's work was sterile or myopic. On the contrary, his theoretical views touched down on so many principles that his legacy is rich in spite of the weaknesses of evolutionary thinking.

Simply stated, Spencer began with an analogy between the biological organism and human society. He concluded that what was true for biological phenomena is also true for sociological phenomena. From this, he concluded that the development of social life increased both quantitatively and qualitatively and in a fashion comparable to change in biological life. As an organism developed from an early single celled stage to increasingly complex and specialized forms, so society evolved from the tribal stage to the modern industrial state. In that stage, society would continue to flourish if left alone.

Spencer believed, as did Darwin, that processes of natural selection were at work; survival of the fittest was the obvious result. Unlike Darwin, however, he argued that such adaptation was not accidental. There was a purpose at work in natural law and once it was understood, society could then stabilize itself in the control of social change. Thus, early social evolution was both optimistic and desirous of regaining social order.[2]

What began to characterize evolutionary thinking was its inevitability. Unlike Darwin, Spencer claimed that adaptation was purposive. Through his three laws: the persistence of force, the indestructibility of matter, and the continuity of motion, Spencer attempted to describe the principles of evolution in physical terms. From these, he concluded that man was predestined to progress.[3]

Nevertheless, societies do not evolve or progress at the same pace because of various "disturbances" in their makeup. For instance, races varied in their original endowments.[4] Since western society, controlled by Caucasians, is "superior" to African society in development, he concluded that whites were superior to blacks. Thus, evolution moved from an effort at objective science to subjective ideology.

The Flowering in Social Darwinism

The 19th century was characterized by rapidly changing social conditions that demanded explanation. What was needed was an emphasis on custom and

regular social behavior that would stabilize society. Crises such as wars were deemed to be acts of natural selection whereby uniformity and unity would be produced in a nation. These processes were not only studied by social evolution but also justified by its doctrines. Thus, social evolution was not only a science in intent but also a conservative belief system in effect. In short, it became an ideology.

This condition produced a profound dilemma. As Benjamin Kidd, an early evolutionist stated, man had to "control the tendency of his own reason to suspend and reverse the conditions which are producing this progress."[5] Rationally, such an effort was unlikely to be successful. It was only through the profound influence of religious sanction that man would be motivated to slow the process of his own progress. Religion, then, acquired purely utilitarian meaning in society.[6]

It was this conservative tendency to resist hasty social reform which came to be known as Social Darwinism. The view that nature was wiser than man and should be allowed to determine social progress was fundamental. Further, the doctrine had matured in its justification of "superior" groups. Moving from its earlier racist tendencies, Social Darwinism now embraced the natural superiority of upper and business classes as a doctrine.

The most influential Social Darwinist in America was William Graham Sumner, a pioneer sociologist.[7] Success was the result of hard work that flourished in a competitive environment. The result was a selection process that formed the basis of civilization. Thus, the struggle for existence is the first fact of life and economic success was a natural by-product. Indeed, military might, as well as millionaires, were deemed the result of natural law, and victory in the Spanish-American War carried an air of divine approval.

The popularity of Social Darwinism encouraged its use for the espousal of diverse national and social movements. For all of its advocates, however, the basic determinant of social change and all social conditions was biological in nature.[8] Reliance on the natural sciences seemed to assure the scientific reputation of a maturing sociology. The validity of this approach was further confirmed by an obvious social progress. While optimism was in vogue, there appeared to be little reason for seeking new theories.

The Turning of the Century's Leaf

With the beginning of the 20th century, however, the "old" evolutionism began to wane.[9] For one thing, earlier evolutionism's misunderstanding of progress was enlightened by the havoc of World War I and other international crises. The optimism of the 19th century gave way to 20th century pessimism; old notions of inevitable progress had to be scrapped. Even early notions of moral progress were deemed questionable as new theories of cultural relativism came to the fore.

Once the doctrine of inevitable progress was questioned, the assumptions of biological determinism and racism were understood more clearly. Rather than seeing man's behavior as determined by inborn biological factors, the true importance of social and cultural factors was recognized. Of even greater importance was the recognition that social and cultural developments were not dependent on biological factors. This meant that society could be influenced by man, and traditionally conservative views were questioned. Hence, the stirring of the Social Gospel and its liberal views called forth new and challenging movements. Progress might be possible but it was not inevitable. It would be the result of working and not dreaming.

We now know that the claim that evolutionary development leads to progress is incorrect.

When the biological sciences were no longer the bases of the social sciences, new philosophical foundations were needed. These were quickly located in pragmatism in the States and in the studies in the unconscious on the continent. Both of these approaches provided a new direction; explanation of social phenomena was not to be gained by studying how man lived in his physical environment but how he took his social environment into himself. Thus, social science begins to stand on its own feet and to look into its own backyard. In its maturity, sociology could shed the biological model and gain acceptance as a member of the cultural sciences.

While the attack on classic evolutionism came from several quarters, it was modern anthropology, especially in England, which probably won the day. Its criticism was that evolutionists didn't fully understand what society was. Without knowing how cultural phenomena are formed or what their functions might be, one could not predict what they would become. With this presupposition as a guideline, the functionalist school developed. The argument was that society with its component parts was a fundamentally different entity than anything found in the biological world. Claiming that change was a natural phenomenon, evolutionists made no attempt to determine *why* social units persist. Change was not to be taken for granted but explained in very explicit terms.[10]

The Seeds of Synthesis

By the first third of the 20th century, classic evolutionary thought had beaten a stubborn and hard fought retreat. Indeed, William Ogburn, a prominent sociologist in pre-World War II America stated, "I claim that the problem of social evolution is solved and that I have played a considerable part in solving it."[11] Whether one would want to accept Ogburn's assessment, there is little reason to doubt his further assertion that the question of social evolution had been raised to a new level of study. Rather than dealing with physical and biological questions, evolution was now considered in social, cultural, and technological terms.

Another trend was a concern for individual and social control of social forces. Unlike Sumner who staunchly supported the Spencerian doctrine of a laissez faire policy in social matters, his contemporary, Lester F. Ward, advocated human control of society at the turn of the century. Ward's teaching is summarized in the view that

> human society lies within the domain of cosmic law, but so does the mind of man: and this mind of man has knowingly, artfully adapted and readapted its social

> environment, and with reflective intelligence has begun to shape it into an instrument wherewith to fulfill man's will [12]

Social science, then, becomes an instrument by which man molds evolutionary principles into social and human ends.

There is little doubt that social evolution never really died. It was merely swept under a new rug. What did die were the old presuppositions and conclusions social evolution had been heir to (or had sired, depending on your understanding of the causal relationship). Indeed, functionalism itself was the new broom, sweeping away the dusty remains while probing into new corners.

As late as 1964, Talcott Parsons, possibly the most influential of American functionalists, published a paper intended "as a contribution to the revival and extension of evolutionary thinking in sociology."[13] Referring to a 'new relativity' that relates its universals to an evolutionary framework, Parsons suggests there is a continuity of human ways with the sub-human.[14] While this organic development exists, it is not sufficient to allow man to adjust to his environment. What are needed are certain cultural patterns which must exist before the society can progress. These, he suggests, are religion, language, social organizations, and technology. All are social developments which exist at the earliest human levels.

A decade prior to Parsons' paper, some of his followers provided a more rudimentary statement.[15] Here the attempt was to spell out "the generalized conditions necessary for the maintenance of the system concerned."[16] The evolutionary overtones are clear and begin with the first prerequisite which is "provision for adequate relationship to the environment and for sexual recruitment".[17] Even the charge of conservatism laid to early evolutionary thought (and to functionalism by its critics) is implicit in the final prerequisite which requires "the effective control of disruptive forms of behavior."[18] Thus, this effort at spelling out why social units persist, in explicit terms, not only fulfills the objectives of functionalism but also carries the evolutionary banner, if not as gloriously as in the past.

Contemporary social thought becomes too complex to allow for adequate treatment of this problem of synthesis here. The apparent merger of two major schools in sociology does leave us with several problems, though we need not delve further into the nature or extent of the synthesis. First, we might ask whether social evolution is a valid concept. Does it, in fact, refer to and describe a segment of social reality? A highly esteemed sociologist with functionalist leanings, Robert MacIver, refers to evolution as "a principle of internal growth."[19] It is a process whereby the true nature of a social system emerges as it becomes what it should be. Yet, in an adjoining section, he refers to evolution as a "clue (which) enables us to set a multitude of facts in significant order."[20] Apparently, the principle only has meaning if the system is approached by asking the appropriate questions. Further, in such an approach there are only some aspects of social change which can be explained by the evolutionary process.[21]

Second, it could be asked whether current evolutionists are not attacking a straw man composed of the hay of functionalism and the stubble of classical evolutionism.[22] Not only does the nature of evolutionary theory remain vague but its merger with functionalist models obscures the nature of the real world even more. To attack such a nebulous foundation without recognizing it as such suggests that one may become heir to similar building blocks. Put more simply, modern evolutionists need to clarify the nature of the problem they are attacking before they can honestly build their own house. Surely every discipline is a victim of such paradoxes which become the basis for raising new theoretical models. Nevertheless, intellectual honesty requires the recognition of such problems before new progress can be made.

The "Fruit" of the New Evolutionism

Turning to the writings of some current evolutionists, the water is increasingly muddied. With the publication of his introductory text, Gerhard Lenski became a leading spirit of what he terms the "new evolutionism." Introducing his book, he argues that the structural-functional approach has declined because it did not provide for an adequate understanding of social change and conflict.[23] Continuing, he states that the new evolutionism may best be described as the ecological-evolutionary approach because of its links with the biological sciences. Nevertheless, he recognizes the

> structural and functional relations within society . . . (which) are studied within the larger and more inclusive framework provided by the ecological and evolutionary perspectives. Thus we could label our approach *structural-functional-ecological-evolutionary*, since it incorporates all the essential elements of both. For the sake of convenience, however, it is usually referred to simply as the *evolutionary* approach.[24]

What seems to come into focus is an ideological question more than a scientific one. Evolution is being pushed to the edges of theoretical thought in that it requires an apparent bias for it to have meaning. Surely there is merit in criticizing functionalism for its limited perspective. Nevertheless, one's wound is no less severe by refusing to be impaled on the one horn of a dilemma in preference for the other. In either case, one may lose one's proper footing.

For example, a definition of sociology as "the study of human societies" is so broad as to lack value today.[25] Also, to define evolution as "a process of change in a definite direction, particularly from a simpler to a more complex state" suggests that complete exorcism of the old evolutionary spirits never did occur.[26] Referring to the existence of socio-cultural regression as a reversal of this evolutionary pattern, Lenski recognizes the weaknesses of the older model.[27] He allows for change in the social system and suggests the possibility of "change in the operation of the evolutionary process itself."[28] Thus, in his attempt to avoid determinism, Lenski appears to open the door for all forms of explanation.

Be that as it may, the new evolutionism is not involved merely in ideological and philosophical tilting. Real efforts have been made to demonstrate the value of this approach in a variety of studies. For instance, in a competent study of the family, interest in evolutionary theory was drawn by the fact that extended familism in Wisconsin and a Chicago suburb par-

alleled similar patterns in primitive societies.[29] The fact that mechanisms operating on both contemporary upper middle class families and primitive societies were comparable suggested a possible evolutionary significance. The conclusion was "that a number of societies at low levels of subsistence technology seemingly respond to abundance by elaborating the family."[30] The evolutionary meaning of the study is linked to the concept of subsistence environment to which the family structure is responsive.

The basic evolutionary principle that society is sensitive to environmental changes, and changes accordingly, is present here. A form of technological determinism, however, replaces the earlier biological determinism. Also, the classic unilinear theory of evolutionary progress is replaced here by a curvilinear model; extended families exist in societies which are both relatively simple and complex but for a similar reason.

In a study of educational systems, the claim is made that evolutionary theory may appropriately be used to study change over a few decades instead of over a long period of time.[31] Societies are compared "to provide a description of the stages or levels of evolutionary development."[32] Social change is not viewed as an evolutionary process but is to be studied by comparative means to allow for a general theory of social change. Instead, evolution itself refers to the three processes of innovation, selection and retention.[33]

Focussing on the process of retention, which is considered critical for evolutionary theory as well as for systematic social change and modernization, the analysis largely confirmed this model.[34] If retention is basic to social change in this case, however, we may ask what it explains and find that it refers to structural-functional questions. Thus, new information is retained once it is introduced into a society largely because it fits the needs of that society. The structure of a modern society is formed because the new information functions to support the rising industrial expectations.

In a final study dealing with status and social ranking, emphasis is placed on a comparison of human and non-human behavior.[35] Referring to basic principles of ranking established by earlier sociological studies, Mazur finds comparable principles exist in the pecking order of hens. He rightly concludes that analogies can always be made between two species, though they are not always meaningful. When two species are divergent, such as is the case with men and chickens, the analogy is hardly reliable. Thus, the need is to bring the analogy closer to man by establishing a primate series, from shrews through man, in order to trace the biological basis of status in small behavior groups.

Studying status in this primate series by reference to published studies in the field, Mazur finds that status characteristics "appear throughout the series, or they emerge as we move along the series toward man."[36] He concludes that "not all but *many* important aspects of human status . . . are biologically-based characteristics of the higher primates, including man.[37] Thus, status has a biological basis but this is not completely deterministic, for "biological tendencies mature and are modified through interaction with the socio-cultural environment."[38]

What the Christian does need is a careful study of the data, while providing a more accurate interpretation of them.

Sampling the New Evolutionism

There are relatively few current studies which claim to reflect the new evolutionary thinking. The few examples offered here suggest the diversity of these approaches. Indeed, the diversity suggests the immaturity of the approach and, more likely, the confusion of it.

Despite the differences in the various approaches discussed, all seem to stress the comparative method of studying data, a stress which reverts back to classical evolutionary thought. As one authority claims, it was because of the association of the comparative method with evolutionism that the method was devalued.[39] Further, he claims that the comparative method can be used by competing theories.[40] Thus, one is left with the hard conclusion that these several studies may be tapping into diverse theoretical models and have in common only a method of study. Indeed, method and theory could very well be confused at this point.[41]

Certainly the Blumberg and Winch article on the family is strong on the comparative method, even though its conclusion is inconsistent with the broader claims of evolutionary thinking. This article also is concerned, not with the study of total societies but with one institution, the family, located in them. Yet, it is precisely this dividing of society into its component parts of which Lenski is so critical. Blaming the reductionists who reacted to earlier evolutionism, Lenski states that their opinion was that society could be studied only by breaking it down into its component parts.[42] "In fact, if you want to be blunt about it, sociology became largely the study of American institutions".[43] Thus, one is left with the possible interpretation that this article is a functional study of institutions which uses comparative methods and claims to follow evolutionary principles.

A curious fact of the Warren article is the previously noted emphasis on a theory of retention. By specifying the characteristics of nation-states that are important to be retained, she is following the same line of reasoning used by Parsons in the aforementioned article; she specifies what is needed by a society to move to the next stage of development. Thus, the apparent link between evolutionary and structural-functional thought is strengthened or else the issues are merely nominal and representative of an ideological debate.

The Mazur article presents us with a return to classic evolutionary thought. The attempt is to provide a biological explanation for at least some, if not all, of human social status. Yet, with proper caution, he notes that social behavior which is found across species lines should be accepted as "given" without further explanation. Further, it is suggested that human and cultural mechanisms may operate in addition to cross-species mechanisms.[44] He concludes with the view that "biological tendencies mature and are modified through interaction with the socio-cultural environment."[45]

Mazur's work, like that of classic evolutionism,

merely traces analogies between humans and lower primate forms without providing causal relationships. While he doesn't clearly argue that these cross-species status conferring behaviors have "evolved" from non-human to human forms, he does claim that status interactions change as one moves along the primate series from the tree shrew to man.[46] The curious fact is that he suggests there is no biological justification for explaining possible large scale social stratification as a species characteristic by analogy. Yet, he uses the same forms of analogy for explaining the small group forms of status conferring he studies in the paper.[47]

Some Conclusions

This brief survey of social evolution suggests that it is more correct to refer to "theories" of social evolution rather than to one encompassing theory. As one point of view floundered on new knowledge, other explanatory systems were tried. The basis for all of this thought, however, stems from the search for natural law. Social phenomena, as all other phenomena, were considered to be subject to observable uniformities that were expressed in laws.[48]

Early social evolution was clearly wrong in its attempt to base such a contention on natural science. We now know the claim that evolutionary development leads to progress is incorrect. Modern social science no longer accepts any simple notion of progress that could be used as a basis for such a claim. Indeed, current evolutionists do not either.

What they do claim, however, is that social change has been influenced "far more by man's genetic heritage, the biophysical environment, and the technologies men have devised to wrest a livelihood from the environment," than by human ideals and values.[49] This is the crux of the question, especially since many of those ideals and values are religious in nature. Once they are removed, the prime mover in social change becomes man struggling with his environment.

Perhaps, then, the new evolutionary thinking in social science represents only this humanistic point of view. If so, social evolutionary thought should be viewed with suspicion, especially since so much of classical sociology recognizes the critical nature of religion in social change. Nevertheless, it is too early to determine whether the view that genetic and physical factors are causal in social change will continue to be basic to the school.

With more confidence, it could be suggested that the new evolutionism lacks any clear theoretical basis. It is probably more philosophical in its direction and ideological in its attack on other sociological approaches. One gets the distinct impression from some of the writing that it is nothing more than an effort to popularize a point of view in the rather sterile climate of contemporary sociology. Here, perhaps, personal motives rather than viewpoint should be held suspect.

But there is some merit in this evolutionary emphasis and it should not be denied. If the dangers of drawing too closely to modern behaviorism can be avoided, consideration of linkages between biological and social behavior is appropriate and has been rewarding. Also, there is always propriety in developing comparative studies on the societal level. If they will broaden our perspective to include the non-Western world, as some of the new evolutionists hope, so much the better. Surely we need a wider basis for testing theories formed in our own backyard.

Some Words for Christians

Evolutionary thought is a veritable ocean of complex principles. Certainly one cannot pull the plug without some good going down the drain. One's first inclination might be to throw out evolution as a body of thought. Nevertheless, caution rather than enthusiasm should probably be exercised. There is a need to perceive the broad implications of the evolutionary viewpoint while sifting through it for grains of truth.

For example, the claim has been made by Christians that *"historical and cultural changes as such are unavoidable and good,* for life keeps unfolding and developing. A change in the form or functions of the family, therefore, could not possibly be considered a cause in the breakdown of the family."[50] (Emphasis supplied.) Such a statement clearly represents antiquated evolutionary thought and misrepresents the facts of family life today; change in family form and functions *are* causes for family breakdown. Lacking sensitivity to the issues involved, one is quite likely to provide erroneous interpretations, as seen in this case.

What the Christian does need is a careful study of the data, while providing a more accurate interpretation of them. This interpretation need not be on the same level as that offered by the non-Christian scientist. Thus, there may, in fact, be much agreement in the behavioral patterns of primates and non-primates, though the usual evolutionary explanation may not be accurate. The Christian needs to supply a more consistent explanation for the data that are apparent to all.

The point is that interpretation of data occurs at different levels. As Abraham Kuyper claimed, the unbeliever and the Christian can agree on the interpretation of technical data while being radically different in terms of the ultimate meaning of that interpretation.[51] Thus, the Christian should not reject conclusions simply because they are labelled evolutionary. Nor should acceptance of them imply that approval is also given to evolutionary thought. It has been shown that evolution is often used merely as a cloak to cover skeletal data, thus giving them a more substantial appearance. What is needed is a more accurate interpretation of the nature of the social world.

Here is where social science with Christian presuppositions can go a long way to correct some errors. There is no question that the early efforts to find "natural laws" for the structure of society were erroneous. This is not to say, however, that there are not different principles which must be sought. As Bube has succinctly stated, "The Christian believes that there is an objective reality about the nature of personal relationships that is just as independent of the individual as are the physical laws of nature."[52] Further, as he states, it is necessary to interpret the dynamic or changing nature of the structure which directs the personal relationships. In essence, this is the type of interpretation offered by social evolution.

There is no reason, then, to accept the poverty of current evolutionary thought. It is not a valid interpretation of dynamic aspects of social relationships. Nor is there reason to reject many of the findings claimed

in the name of the new evolutionism. Most are more likely to be justified by the use of evolution than explained by other views and are not part of a specific arrangement of facts linked only to evolutionary thinking.

In the final analysis, however, these questions are secondary to the prime task of understanding those principles established by God for the control of social relations. In social science, as in physical science, the critique of evolutionary thought, as necessary as it might be, should not divert us from more fundamental tasks.

NOTES

[1]G. Duncan Mitchell, *A Hundred Years of Sociology* (London: Gerald Duckworth & Co. Ltd., 1968), p. 23.

[2]Indeed, Spencer and Comte reacted to the earlier Enlightenment thinkers who were more desirous of "change for change's sake." With moral and social responsibility in mind, they were more inclined to seek that equilibrium which would be of greatest benefit to the greatest number. See Kenneth E. Bock, "Evolution, Function, and Change," *American Sociological Review*, 28 (April, 1963), pp. 229-237.

[3]Nicholas S. Timasheff, *Sociological Theory: Its Nature and Growth* (Garden City, New York: Doubleday & Company, Inc., 1955). pp. 32-33.

[4]*Ibid.*, p. 39.

[5]Benjamin Kidd, *Social Evolution* (New York: Macmillan and Co., 1895), p. 88.

[6]Floyd Nelson House, *The Development of Sociology* (New York: McGraw-Hill Book Company, Inc., 1936), p. 163.

[7]Richard Hofstadter, *Social Darwinism in American Thought* (Boston: Beacon Press, 1955), p. 51.

[8]Timasheff, *op. cit.*, p. 70.

[9]This distinction between the older forms of social evolution and its newer forms is basic. Even a major supporter of the new form, Gehard Lenski, notes these distinctions and refers to the reasons for the demise of early forms in an unpublished paper entitled, "The New Evolutionism."

[10]See Bock, *op. cit.* for a more complete discussion of this point. Bock argues, however, that functionalism is entrapped, as was evolutionism, by the effort to untangle the web of social change and develops the same weaknesses.

[11]Howard W. Odum, *American Sociology* (New York: Greenwood Press, Publishers, 1969). p. 151.

[12]Howard Becker and Harry Elmer Barnes, *Social Thought from Lore to Science*, second edition (Washington, D.C.: Harren Press, 1952), p. 972.

[13]Talcott Parsons, "Evolutionary Universals in Society", *American Sociological Review*, 29 (June, 1964), p. 339.

[14]*Idem.*

[15]D.F. Aberle, A.K. Cohen, A.K. Davis, M.J. Levy, Jr., and F.X. Sutton, "The Functional prerequisites of a Society", *Ethics* 60 (January, 1950), pp. 100-111.

[16]*Ibid.*, p. 100.

[17]*Ibid.*, p. 104.

[18]*Ibid.*, p. 110.

[19]Robert M. MacIver, *On Community, Society and Power: Selected Writings*, edited by Leon Bramson (Chicago: Chicago University Press, 1970), p. 121.

[20]*Idem.*

[21]*Ibid.*, p. 120.

[22]For a clear statement of the nature of the attack, see Gerhard Lenski, "The New Evolutionism" (Paper presented at the Annual Meeting of the American Sociological Association in New York, August, 1973) and Jack Goody, "Evolution and Communication: The Domestication of the Savage Mind", *The British Journal of Sociology*, 24 (March, 1973), pp. 1-12.

[23]Gerhard Lenski, *Human Societies* (New York: McGraw-Hill Book Company, 1970), p. 24.

[24]*Ibid.*, p. 25.

[25]*Ibid.*, 502.

[26]*Ibid.*, p. 497.

[27]*Ibid.*, pp. 112-116.

[28]*Ibid.*, p. 117.

[29]Rae Lesser Blumberg and Robert F. Winch, "The Rise and Fall of the Complex Family: Some Implications for an Evolutionary Theory of Societal Developments" (Abstract of a paper presented at the Annual Meeting of the American Sociological Association in New York, August, 1973).

[30]*Idem.*

[31]Jean Tittle Warren, "Evolutionary Theory Applied to Modernization: The Expansion of National Educational Systems" (Paper presented at the Annual Meeting of the American Sociological Association in New York, August, 1973).

[32]*Ibid.*, p. 3.

[33]*Idem.*

[34]*Ibid.*, pp. 4 and 19.

[35]Allan Mazur, "A Cross-Species Comparison of Status in Established Small Groups" (Paper presented at the Annual Meeting of the American Sociological Association in New York, August, 1973).

[36]*Ibid.*, p. 21.

[37]*Idem.*

[38]*Ibid.*, p. 25.

[39]Geoff Payne, "Comparative Sociology: Some Problems of Theory and Method," *The British Journal of Sociology*, 24 (March, 1973), p. 15. Payne makes the further assertion that the comparative method was linked with functionalism.

[40]*Idem.*

[41]Payne explicitly states that a history of the comparative method shows that social theories have, in the past, been confused with method.

[42]"The New Evolutionism", *op. cit.*, p. 7.

[43]*Idem.*

[44]Mazur, *op. cit.*, p. 22.

[45]*Ibid.*, p. 25.

[46]*Ibid.*, p. 23. This change is characterized by a transition from more overt power behavior to more subtle, normatively-based deference behavior.

[47]*Ibid.*, p. 25.

[48]See, for example, Heinz Maus, *A Short History of Sociology* (New York: The Citadel Press, 1966), p. 5.

[49]Lenski, "The New Evolutionism," *op. cit.*, p. 6. In making this contrast, it is curious to note that Parsons, accepted by modern sociology as a functionalist, is referred to here as a "new evolutionist", p. 5.

[50]Arnold H. DeGraaff, etc. al., *Hope For the Family* (Toronto: Wedge Publishing Foundation, 1971), p. 5.

[51]Aaldert Mennega, "Seek First the Kingdom—In Science," *The Outlook* (September, 1974), p. 14. It should also be noted that the important sociologist Max Weber held to a very comparable position, though not stated in a Christian context.

[52]Richard H. Bube, "A Proper View of Science Corrects Extremist Attitudes", *Universitas* (March, 1973), p. 3, see also *Journal ASA* 28, 2, 5, 82 (1976)

The dangers of using social utility considerations in immediate life or death decisions is equally real. . . . The ultimate fear is not just cynical decisions regarding the moribund patient, or active elimination of other unproductive beings, but a general undermining of societal concern for, and sensitivity to, beings suffering handicapped existences.

Norman L. Cantor

"Law and the Termination of an Incompetent Patient's Life-Preserving Care," in *The Dilemmas of Euthanasia*, J. A. Behnke and S. Bok, eds., Anchor/Doubleday (1975), p. 95.

The Orthodox Bigot: A Sociological Analysis

RICHARD B. PERKINS

Department of Sociology

Westminster College
New Wilmington, Pennsylvania 16142

People who claim a high degree of religious orthodoxy are more likely to be prejudiced than are people who are not committed to what otherwise could be called "Christian dogma." Scientific attempts to explain this association have met with only limited success. Recently, however, two breakthroughs have occurred in scientific research. First, when religiosity is reconceptualized to include not only measurements of religious belief ("orthodoxy") but commitment to these beliefs ("saliency") as well, a new pattern emerges. Secondly, new insights are available from the effort to analyze religious beliefs and attitudes from a "worldview" perspective—an analytical perspective which suggests ways in which we can better understand the orthodox-prejudice relationship.

When we compare these two theoretical approaches, however, we find that certain logical inconsistencies develop. An attempt is made to establish a theoretical synthesis in light of this apparent paradox.

Implication of this theoretical synthesis and the available findings coming out of this new approach for Christian faith are briefly examined.

The findings of social scientists sometimes conflict with our pre-set notions of propriety. For example, Christians believe that the ethical teachings of Christ have pronounced effect on the thought and deeds of believers. We would therefore expect the typical Christian to exude an uncommon spirit of benevolence and charity uncharacteristic of the population at large. In fact, if we must make a general statement, just the reverse is apparently true. Sociologists and psychologists have produced a long list of research findings showing a consistent positive correlation between Christian orthodoxy and (non-benevolent and uncharitable) racial or ethnic prejudice.[1] It is an inescapable conclusion that to a large number of Christians[2] the "love of Christ" has meant the "love of us" and the implicit hatred of "them."

A question remains, however, concerning the true relationship between commitment to traditional dogma and prejudicial attitudes. To say that many Christians are bigots is one thing,[3] to say that Christianity actually causes bigotry is quite another matter. Although such a thesis has occasionally been proposed, it has generally been rejected due to a lack of anything resembling convincing evidence.[4] In the absence of such evidence, most theorists have grappled with the Christian belief-prejudice association in terms of a spurious relationship, explaining the positive correlation with reference to another factor which shares a suspected causal link with both prejudice and religiosity.

The purpose of this paper is twofold: first, to report briefly recent findings which bear on this thesis and, secondly, to present a synthesis of existing theoretical work whereby current explanations of this phenomenon can be further refined. The discussion centers on two major topics of contemporary theory relating to each of these areas: the reconceptualization of religiosity as an important theoretical construct, and the consideration of a "worldview" approach in examining the relationship between religious belief and prejudice.

The Components and Dimensions of Religiosity

Once the relatively simple question, "Are religious

people typically bigoted?" has been answered, we can move on to the more complex question. "*How* are such people religious?" In other words, it is not enough to define Christianity in terms of what it *is* (i.e., commitment to various doctrines), but rather to define Christianity in terms of *how it operates* in the lives of the believers. Such a definitional distinction recognizes that people are religious in varying ways, and that they go about being religious in varying ways as well. Until recently, sociologists have limited their investigations into religiosity to the former definitional category; to be "religious" was to display the "marks" of religion. Note was taken of behavior and attitude, such as praying, going to church, committing oneself to a given doctrinal code, "knowing" the Bible, etc.—in short, doing what religion *is*. Such substantive definitions of religiosity have been termed the "components" of religion by Verbit (1970). Viewing religion componentially gives a one-dimensional picture, for religion has a depth—a degree of intensity—not tapped by such easily quantifiable measures, such as orthodoxy. Therefore, Verbit suggests that studies focus in on the second aspect of religious behavior, the aspect he refers to as the "dimensions" of religion, such as the frequency or intensity of religious thought or deed. As measured both ways, the researcher is able to depict the respondent as, to some degree, a "believer", as well as to gauge the degree of commitment for such an individual. (It is obviously possible to be orthodox in one's belief while at the same time not caring too much about the matter; commitment cannot be assumed to be an automatic correlary to religious belief.) From this little insight have come several research reports which shed some light on our original proposition: that orthodoxy and prejudice are positively related, (Figure 1).

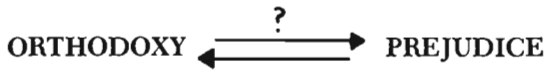


Figure 1.

If the components and dimensions of religiosity are seen as separate, yet related, variables, then the hypothesis can be expanded to fit a triangular causal model, depicted in Figure 2.

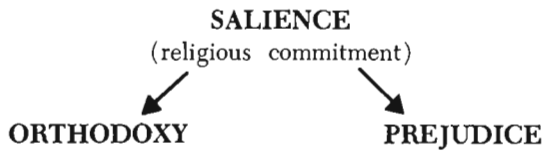


Figure 2.

In effect, when the degree of religious "salience" is added to the equation whereby orthodox and prejudicial attitudes are compared, we find that the original positive correlation is reduced, thus showing the orthodox-prejudice relationship to be at least partially spurious; (e.g., Allport, 1954, 1966; Allport and Ross, 1967; Feagin, 1964; Wilson, 1960). Although the research findings are not all of one piece,[5] it is possible to conclude that orthodoxy per se and committed belief ("salient orthodoxy") have very dissimilar relationships to prejudicial attitudes. Such a conclusion not only heartens those who see Christian ethics opposed to bigotry but forces us to search for possible empirically-based explanations as to why this should be the case.

Before directly considering the subject of explanation, however, it will be necessary to introduce some rudimentary ideas from social-psychology and to relate these ideas to contemporary religious behavior in America.

Personal Identity, Religious Salience, and Secularized Religion: Self-identity is constructed socially out of the web of interactions in which the individual is biographically located. In effect, the person becomes the roles he or she learns to play. In a highly differentiated society such as ours, where a plurality of specialized roles is assigned or otherwise available to each actor,[6] identities are composites of these role-expectations assigned by other social factors with whom we are in daily contact. The internalization of such normative expectations—as a result of biographical experience—constitutes the process of identity formation. Leaving aside the specific question of how one becomes a "religious" person,[7] we can describe the religiously "committed" person as one who considers religious values salient to all areas of daily behavior and decision making. Such a person, whose religious role pervades his total identity, is apparently an anomaly in modern secularized society—a society which has had religion removed from nearly all institutional arenas not specifically religious in nature—save the family and "private life."[8]

On the other hand, "secularized" and non-salient religiosity abounds in modern America. For the middle and upper classes, "being religious," (that is, being identified with the organized church in various capacities), is socially "in." One's moral career—whether it be motivated by cynically Machiavellian intentions (as perhaps in the case of church-going politicians) or by the simple desire to "do what is right"—is usually advanced by at least periodic church attendance. At the same time, getting "too serious" about religion is generally seen as a social handicap, for anything which smacks of fanaticism is frowned upon. The mainstream norm is religious tolerance, and being "overly serious" about religion is seen as a deviation from this standard. Being "close minded" about such things is tantamount to being "un-American"—a charge the super-patriots of the Fundamentalist right must find particularly ironic.

All of this is, of course, quite different from the Biblical intention of the term "Christian." There it has a special significance: i.e., one who is mastered rather than one who is master. To be a true "Christian" in the Biblical sense, one must be committed to seeking the intervention of Christ in daily affairs. To be a "Christian" in the cultural sense one must simply seek to "fit in," to conform—religious conformity in modern industrialized states being equated with secularized ethics rather than total commitment.

One explanation for the correlation between secularized faith and prejudice can be found in the analysis of conformity itself. While theories dealing with conformity as a psychological variable do exist,[9] a detailed consideration of them here would run far beyond the intended analytical scope of this paper—which is to

pursue a sociological analysis of the problem.

However, certain "sociological" explanations (which focus on committed faith) involve assumptions which are difficult to validate empirically. For example, Gorsuch and Aleshire (1974) conclude that persons who exercise a commitment to the faith and persons who are free from bigotry have at least one thing in common: neither conforms to the mainstream American world view which (1) does not take religion "seriously" and (2) prescribes at least subtle racist attitudes as a normal cultural outlook. Why then are the two (low prejudice, high religious commitment) associated? Because, say the authors, "such a selection of religious values generally not widely accepted requires a critical evaluation of the religious tradition, and, we assume, a critical evaluation shows the problems of a racist position," (p. 288). Non-conformity apparently fosters moral introspection and, as a consequence, logical consistency. It is important to note that such an explanation rests on the familiar "rational man" presumption: that the truly committed believer can "see" the inconsistency between being a truly committed Christian on the one hand, and being a bigot on the other. Although such a thesis is difficult to test directly, it does appear to have a certain plausibility as well as a good deal of social psychological research to base it on.[10]

However, there seems to be at least one problem which is difficult to analyze: if religious commitment means what most people take it to mean, then some of the most "committed" Christians appear to be among the most bigoted as well, if we include in this category those who describe themselves as "Fundamentalists." Garrison's study of denominational affiliation in Georgia demonstrates that members of rigidly orthodox denominations are more likely to be prejudiced than are members from less Fundamentalistic denominations. Similar conclusions are reached by researchers in other geographical areas: O'Reilly and O'Reilly (1954), "non-South"; Gregory (1957), California; Photiadis and Biggar (1962), South Dakota; Kersten (1970), Detroit.

In attempting to understand the complex relationship between religious faith and ethnocentrism, several difficult questions have been encountered. First, many studies reveal an apparent and unexplained association between ethnic tolerance (low prejudice) and committed faith (salient religiosity). Secondly (and paradoxically), certain forms of traditional faith, such as Fundamentalism, have a pronounced affinity for ethnocentrism. If these two apparently contradictory findings are to be explained, we must seek to develop a theoretical perspective which will successfully integrate them to a more general socio-psychological process.

Such an approach appears to be offered in the analysis of the role of religion in the origin and maintenance of worldview.[11] In considering this issue, we move our analysis from the salience of religious belief, our initial interest, to the second area of analytical focus: religious belief as sustaining important definitions of reality, or as has just been stated, a "worldview" approach to religiosity.

Religion and Worldview

Human interaction is an interpretive process: that is, interaction is always meaningful to the actors involved. Such meanings (symbolized by language, gestures, material objects, etc.) pre-exist the interaction situation itself, (although this assumption does not preclude the creation of new symbols via the interactive process). In other words, culture—embodied for an actor in an overall worldview—exists "outside" the actor, (in the form of the expectations and demands of other actors with whom he comes in social contact), as well as "inside" (in the form of the internalization of these expectations). Man, then, confronts culture (as an external reality), and vice versa.

There is one other important point to recognize: culture (embodied in any particular worldview) is a human product.[12] Cultural change, therefore, results from human activity. Stated in a way that is more illustrative of the point being pursued here: cultural stability is the result of human inactivity. Worldviews remain fairly consistent over great periods of time due to the fact that people continue to believe in the symbols they (or their ancestors) have created. Thus, cultural symbols such as wedding rings, crosses, flags (and all they stand for) have surprising longevity. This propensity towards passing on symbol systems intact is the result of the process of reification: that is, endowing cultural symbols with an ontological status they do not "deserve." Objectified culture is perceived as existing *sui generis;* the "world" (as perceived) is "taken-for-granted." Such worldviews are stable insofar as they command universal adherence; one of the most convincing indications that a given worldview *is* reality (rather thas just one version of it) is the simple fact that no one believes in anything else. There are no alternatives available. Therefore, the problem of legitimation (i.e., making the worldview accepted as the reality rather then as one of a number of alternative perspectives) does not exist in simple societies. Cultural stability and cultural monopoly go hand in hand.

However, as we have already discussed above, modern societies abound in alternative worldviews. For example, we find in contemporary society such divergent worldviews as those of the "mainstream American" vs. the "Hippie," the South vs. the non-South, the lower vs. the middle class, and so on. The simultaneous existence of so many divergent (and often antagonistic) worldviews[13] would cause more normative confusion than they already do were it not for the operation of certain compensatory mechanisms. The process of reification, already mentioned, is usually complemented by the operation of one such mechanism: nihilation, a process whereby divergent (and therefore threatening) reality definitions (and those who are committed to them) are "mentally exterminated." Nihilation involves the attempt "to account for all deviant definitions of reality in terms of concepts belonging to one's own universe."[14] In this case, alternative worldview "B" is "explained" by persons committed to worldview "A", but in "A's" own terms. For example, if "everyone knows" (i.e., all "A's" know) that to be "normal" means to have white skin, then the standards of "B" (black skin) can be regarded as "abnormal," the label "abnormality" being meaningful only with respect to "A's" normative standards, (whiteness).[15] "A" successfully disposes of "B", and in so doing reinforces the sanctity of his own white world. This is the process whereby ethnocentrism (or racism) operates to "nihil-

ate" alternative ethnic groups; e.g., Black inferiority *ipso facto* defines the superiority of Whites.

Our theory of reality maintenance proceeds, therefore, from the fact that socially constructed reality confronts the actor in objectified terms: that is, cultural norms are perceived as "real" through the process of reification. Alternative worldviews, which, by their very presence, threaten the ontological status of the original worldview, are "handled" via nihilation. To go one step further, we incorporate the fact that religion has historically functioned to legitimate worldviews by means of sacredization.

We note that nihilation and sacredization are often cojoined processes which support the process of reification. The bigot's efforts to reify a world constructed around the proposition that all White men are superior to all Black men is given a substantial boost when the bigot "discovers" that God has ordained the Whites to dominate the Blacks. Hence, "reality" of White superiority as "normal" is augmented by beliefs that "God would have it this way." The Southern institution of slavery was therefore given a sacred character ("divinely ordained")—that is, one which is not to be tampered with lightly. Now Black inferiority (justifying White prejudice) is viewed as part of the divinely ordered plan of the cosmos, rather than simply as a convenient scheme to make the Black folks do all the dirty work. Presumably such a conception constitutes considerably less of a moral burden to bear. In fact, it can sponsor outright fanaticism in its defense, for now the bigot is defending not only his own narrow interests, but the work of the Lord as well. Questioning racial orthodoxy becomes tantamount to questioning doctrinal orthodoxy. Both become damnable heresies.

Such views can still be found in modern societies. But it should not be necessary to stress that there are worldviews in modern society which operate on quite different assumptions. The "modern" worldview is one where alternative worldviews are more likely to be given legitimate status; everyone is predefined as "OK", no matter what their social location. Such a tolerant outlook may not represent the majority view in today's society, but it is characteristic of the urbane sophisticates found in certain social locations, typically in the most educated sectors of our society.

Tolerance (or the absence of it), whether for religious or ethnic difference, is an underlying factor in worldviews presently existing in this society. The thesis being developed here postulates that individuals who remain committed to a traditional worldview do so because their reality is successfully reified, alternative worldviews having been successfully nihilated. In a society dominated by ideas which are generally incompatible with traditional Christian dogma,[16] and where a reified worldview is increasingly less likely, it is necessary to inquire into the social circumstances whereby some members continue to be committed to this view.

One way to remain uninfluenced by the ideological pluralism found in any modern society is to simply ignore it. This can be accomplished by maintaining a narrowly defined "breadth of perspective."[17] Reification is fostered only when monopolistic worldviews (i.e., those which claim absolute truth) are seen as plausible (legitimate); it is suggested here that a parochial perspective will support reification (and consequently, "nihilation" or ethnocentrism) more successfully than will a broadened perspective. Ethnocentrism is therefore a more likely attribute of the secloistered native than for the world traveler. Since both ethnocentrism and commitment to traditional dogma are elements characteristic of a monopolistic worldview,[18] both can be believed only by persons capable of reifying them as absolute. It follows, then, that the "true believers" will be those persons with a narrow breadth of perspective.[19]

To say that many Christians are bigots is one thing; to say that Christianity actually causes bigotry is quite another matter.

Some empirical work which substantiates this proposition has been completed. These studies have used the localism-cosmopolitanism index developed by Merton (1968) as an indication of breadth of perspective. This index measures the extent to which an individual identifies with reference groups available in one's immediate community ("local") or with extra-local (national or even international) reference groups ("cosmopolitan"). This distinction calls attention to the varying degree of influence local normative patterns have which predisposes a person's perceptual, evaluative, and cognitive responses. The "localite" is a person who "lives" (cognitively, but not necessarily geographically) in a small town world where local events and local norms take precedence over events and standards elsewhere. More importantly, the "elsewhere" is defined in terms of the "local." Hence, for the localite, the politics of Washington, D.C. are simply hometown politics writ large (and are taken to be less interesting as well).

Roof (1972) has found localism to be a successful predictor of commitment to traditional dogma—almost as important a predictive factor as age, sex, education, and occupational prestige combined. In addition, he has demonstrated that the moderately negative correlation so often observed between education and ethnocentrism is a partially spurious relationship—substantial variation being explained by the factor of localism (1974). This is an important finding in that it suggests that education does not, in itself, broaden perspective and therefore reduce the tendency to reify, (a necessary condition for prejudicial attitudes). Some people can apparently be well-educated while still retaining a localistic orientation, and hence a predisposition toward ethnocentrism. The negative correlation between education and prejudice, then, indicates that education facilitates, but does not guarantee, a broadened breadth of perspective and hence a decline in localistic reference.

Summary

This paper, in seeking to develop an explanation of the apparent positive correlation between orthodoxy and ethnocentrism, has investigated two related areas of current research. The first concerns the varying types of religiosity related to orthodox belief. Rather than simply measure what religion "is" (i.e., what people believe), researchers must consider what Zahn (1970)

A narrow-minded (and consequently bigoted) non-believer remains narrow-minded (and most probably bigoted) upon conversion.

terms the "commitment dimension,"—i.e., the influence that faith has in the believer's life. Research findings appear to establish the fact that committed or "salient" faith is unrelated to ethnocentrism, whereas secularized or "conformist" faith is positively related.

Any adequate theory of religious belief must seek to explain such findings. One way to tackle this problem is by looking at the committed believer. However, this approach involves some rather tricky theological issues, such as the effect of "cognitive consistency," (i.e., the ideological incompatability between racist and Christian ideals). Rather than pursue this path in any detail, this paper has focused analytical attention on the other side of belief—the "use" of religion for non-religious ends.

The second area of investigation, the study of world views, follows from the writings of Peter Berger and Thomas Luckmann. Here, social "reality" is viewed as a creation of human interaction. In culturally pluralistic societies such as ours, where opposing worldviews do co-exist, several alternative perspectives arise which "handle" this discrepancy in widely divergent ways.

One "strategy" (one which is hardly a deliberate policy, of course) is to nihilate opposing worldviews, and in so doing maintain a reified world which claims a monopoly on truth: all other views are declared false and summarily dismissed from serious consideration. Such a tautological scheme is plausible only to those with extremely narrow social perspectives. Thus, localism, as an independent variable, is seen as maintaining the plausibility of monopolistic worldviews—one where absolute truth is confined solely to the in-group. The in-group is perceived as racially and religiously "correct"; all else is inferiority and heresy. It is not surprising, therefore, that we find a close association between absolutist dogma (as in the case of "Fundamentalists") and racial bigotry.

Another "strategy" is to base one's worldview on an ethic of tolerance. Thus, competing worldviews, (for example, traditional vs. radical conceptions of women's roles in modern society), are seen as at least partially legitimate in their own right. Issues are discussed with some degree of logic and interest rather than dismissed as nonsense. This ethic of tolerance, the basis for modern political and social structures such as democracy, is sponsored by a cosmopolitan worldview, one which is incompatible with culturally monopolistic elements like religious fanaticism and racial bigotry.

We are left, however, with the paradox we encountered before: how is it that committed religion is associated with ethnic tolerance? Is not total commitment the mark of a pre-modern (hence, localistic) mind, whereas tolerance in issues such as ethnic difference characterizes the modern cosmopolitan outlook?

One possible solution lies in the analysis of commitment itself. What does it mean when we speak of "religious commitment"? Commitment to what? Several recent studies show that religious commitment can and does vary widely even within a single denomination. According to Strommen's (*et. al.*) study of three major branches of the Lutheran denomination, entitled *A Study in Generations*,[20] certain church members, otherwise described as "highly orthodox," can be divided into two distinct theological categories: those who are primarily "law-oriented" and those who are "gospel-oriented." The law-oriented believers, stressing the divinity of Christ and the depravity of man, demonstrate a marked penchant for religious absolutism, yielding a moral system which has no tolerance for "grey" areas. On the other hand, the gospel-oriented believers, whose belief incorporates not only the divinity of Christ but his humanity as well, have as their central theological focus the atonement of man's sins by the saving grace of Christ. As might be expected, law-oriented believers (referred to as "heretics" by the authors, due to their denial of the dual nature of Christ), demonstrate a decided antipathy toward change of any sort and a greater likelihood of ethnocentrism. Strommen and his associates conclude that it is the "misbelief" of the law-oriented believers which causes these persons to be bigoted and ethnically narrowminded. Unfortunately such a thesis is, of course, simply another variation on the ill-conceived "cognitive-consistency" theme (although the authors reject the similar Glock and Stark thesis).

An alternative explanation can be derived from the worldview approach developed previously—a theoretical approach which incidently evades the pitfalls of the rationalistic thesis, while benefiting from the insights into religious commitment which the Strommen study contributes. Rather than presuming the causal primacy of religious belief (or misbelief), it is hypothesized that church members who are prone toward reification, due to their localistic orientation, would adopt as a consequence those aspects of traditional Protestant orthodoxy which allow for monopolistic interpretations. For the localite, religious commitment means the security of theological absolutes and the necessary nihilation of all which runs counter to these absolutes. Their religious bigotry is of course matched by their ethnic bigotry. (Interestingly, Strommen and his co-workers found law-oriented believers most intolerant of minorities who represented a different worldview: not Blacks or Jews, so much, but rather Communists, homosexuals, Hippies, and Students for a Democratic Society.) Any "big easy" answer to life's questions (whether theological or otherwise) is most threatened by alternative big easy answers; alternatives must be nihilated, and prejudice or other forms of hatred accomplish this quite satisfactorily. However, it would be a mistake to label such believers "uncommitted" for their commitment is usually quite intense. It is therefore necessary, as the Strommen study points out, to inquire into the nature of this commitment. To say that it is religious belief per se which shores up the tottering *Weltanschauung* buffeted by the cultural pluralism found in modern society is to overlook this—more fundamental—aspect of causal analysis.

In addressing oneself to the question of breadth of perspective and the need for reification, (and hence nihilation), we raise other interesting questions as well: among them being, if religious secularization continues and fewer persons find traditional dogma plausible, yet the necessity for reification remains, what alternative cultural forms will arise as substitutes?[21]

This paper stresses the explanatory power of the worldview approach. Put simply, the theologically relevant conclusion of this approach is as follows: a narrow-minded (and consequently bigoted) non-believer, when converted, remains narrow-minded (and most probably bigoted). Whether such a person—committed to a rigid and absolutist faith—constitutes a "true Christian" is a question for theologians, not scientists, to debate. The evidence reviewed here does not, of course, rule out the possibility of dramatic supernaturally induced "personality" transformations. Again, these are not questions open to empirical test. But the evidence does suggest, however, that the breadth of perspective with which one views the world —in which he lives and finds meaning—does, in fact, have a strong influence on attitudes relating to other areas of life not specifically religious in nature.

FOOTNOTES

[1]An even stronger case can be made for the relationship between bigotry and church attendance: regular church attenders are typically more prejudiced than those who do not regularly attend: (Merton, 1940; Levinson and Stanford, 1944; Gough, 1951; Rokeach, 1960; Hadden, 1963; Blum and Mann, 1960). There is some evidence, however, that the relationship is actually curvilinear. In any event, church attendance is hardly a satisfactory index of religiosity, since people attend church for many reasons—some of which have little to do with "being religious." In the middle classes, for instance, going to church establishes a person in a favorable prestige category: hence, middle class Protestant membership is disproportionate to lower or working class membership. (Demerath, 1965). Gordon Allport, for example, has found that persons who "use" religion in this way are more likely to be prejudiced than are those persons who are "truly" religious—a point we will return to later. (Cf. Allport, 1954, 1960, 1966; Allport and Ross, 1967.)

[2]Or at least persons who declare themselves to be Christians.

[3]As is evidently the case; all 15 studies which examine the relationship between conservative Protestant belief and prejudice reviewed by Gorsuch and Aleshire (1974), report a low to moderate positive correlation.

[4]The latest researchers to claim causality are Glock and Stark (1966). However, their study has been severely criticized by Russell Middleton (1973) and found to be methodologically deficient. Cf. the research summaries by Bouma (1970, 1973) and Rojek (1973), both of whom conclude that the causal primacy of the "religious factor" has not been adequately established.

[5]Cf. Bahr *et. al.*, (1971) and Gibbs *et. al.*, (1973) for studies which report other conclusions. See also Roof and Perkins (1975) for a detailed methodological critique of these two studies, plus an alternative theoretical scheme—compatible with many of the suggestions given in this paper—with supporting evidence.

[6]A term used to stress the fact that sociological interest is on the action system—in this case role behavior—rather than the actor himself.

[7]A question which Christians would give a non-empirical (and therefore non-scientific) answer to anyway—at least insofar as the attempt is to "explain" the conversion of Christians. (Incidently, this explanation becomes thoroughly ideological, and totally biased as a result, when non-Christian religious conversion is seen by "Christian scientists" as within the realm of scientific explanation, whereas Christian conversion is not.)

[8]Cf. Luckmann's *The Invisible Religion*, New York: Macmillan, 1967.

[9]In the author's opinion, the most promising of these psychological theories is presented in Milton Rokeach's *The Open and Closed Mind*, New York: Basic Books, 1960. This and other theories dealing with personality functions are summarized in Ditties "Religion, Prejudice, and Personality" in Strommen (Ed.), *Research in Religious Development*, New York: Hawthorne, 1971.

[10]Cf. Leon Festinger, *A Theory of Cognitive Dissonance* (Stanford: Stanford University Press, 1957).

[11]The sociological analysis of world-view is best represented in the writings of Alfred Schutz. His writings have been incorporated into a more general theoretical approach by Peter Berger and Thomas Luckmann. The discussion to follow is largely taken from their classic statement, *The Social Construction of Reality* (New York: Anchor Books, 1967). "World View" is a concept referring to the integrated body of common sense knowledge (i.e., meanings, ideas) by which the ordinary person (not the scientist or intellectual) perceives and interprets 'the world." Reality is therefore defined by means of this sytemic knowledge and, as such, this phenomenological apprehension must be understood as a critical factor in the analysis of social interaction.

[12]This is not a theological proposition, but rather a scientific statement. Of course, the scientific status of such a statement does not, *ipso facto*, negate the validity of theological statements. To say that culture is a human product is not to deny that certain cultural forms (e.g. monogamous marriage) can also claim to have divine origination. All must recognize, however, that (1) the former statement has empirical validity, whereas the latter does not, and (2) that science has absolutely no "say" as to the accuracy of theological statements.

[13]It is not being suggested that the alternative world views are totally divergent. There may in fact be considerable overlap in the "knowledge" contained in two otherwise antagonistic world views. Both the Hippie and the business executive "know" that two o'clock comes 60 minutes after one o'clock, and that it is gravity which makes objects fall. What they "know" to be true about such subjects as work, drugs, or patriotism will be quite a different matter however.

[14]Berger and Luckmann, *op.cit.* p. 115.

[15]Of course, the exact reverse is also possible; hence, such definitional disputes usually become political disputes with the group with the greatest power successfully labeling the less powerful group "deviant" and making the label "stick."

[16]Such as science, although the possibility for ideological compatibility is real. (This magazine demonstrates that quite well.) However, for obvious reasons, this compatibility is less likely in the social sciences than in the physical sciences, a fact illustrated by the membership list of the A.S.A. and the articles appearing in this *Journal*—most of which are written by physical scientists.

[17]A concept developed by Gabennesch (1972).

[18]Ethnocentrism claims that one's cultural standards are superior and, presumably, that there are absolute standards by which superiority can be judged (e.g., "civilization"). Similarly, traditional Christian dogma claims absolute truth: only Christians are "saved"; everyone else is "lost." Hence, there is only one correct way—the Christian way. Both ethnocentrism and traditional Christian dogma are therefore monopolistic. There are, of course, very important possible differences between the two as well. Were it not for the fact that these differences *may* exist, the explanation which is being pursued here would not be applicable. Ethnocentrism is always monopolistic, inevitably involving "us" against "them". Christianity (or any religion for that matter) can also involve such exclusive formulations—a fact amply demonstrated by world history; but it need not be this way. While the dogma of the "saved" vs. the "lost" ("heathen", "pagan", etc.) can imply exclusivity, there is nothing in the teachings of Christ which would promote such a view. The Apostle Paul's assertion that Christ died so that all might be saved is quite non-exclusivistic. The point is therefore this: religion can be (and often is) "used" to shore up an illiberal world view (based upon ethnocentrism and other reified monopolistic orientational principles). Therefore, the correlation between orthodoxy and bigotry should not be surprising. On the other hand, a religiosity marked by committed ("salient") faith—a faith which is characterized by the universalistic appeal of St. Paul and the humility and sincerity of Christ—would be incompatible with bigotry. The issue—in empirical terms—therefore revolves around the manner in which people respond to religion and the factors which influence them to do so. I am suggesting here

that it is a limited breadth of perspective (localism) which fosters the tendency towards reification necessary for traditional Christian doctrine to remain plausible and (what is more important) to support a dogmatic and exclusivistic commitment to it typical of "fundamentalistic" faith. Such persons are likely to be believers in both religions as well as racial "orthodoxy". It is an error, therefore, to assume, as some do, that it is Christian beliefs which "cause" bigotry. In addition, we must be careful to note that "religious salience" must be carefully conceptualized to include differences between parishioners who are committed to exclusivistic dogma, vs. those committed to humanitarian and universalistic dogma.

[19]Nelson's analysis of sectarianism proceeds along a similar theoretical scheme: "Sectarianism, World-View, and Anomie," *Social Forces*, Vol. 51 (Dec. 1972), 226-233.

[20]Minneapolis: Augsburg Publishing House, 1972.

[21]One possible answer already receiving wide attention is the subject of "civil religion" (cf. Bellah, 1967).

REFERENCES

Allport, Gordon W.
1954 *The Nature of Prejudice*. Garden City: Doubleday and Co.
1960 *Religion in the Developing Personality*. New York: New York University Press.
1966 The religious context of prejudice. J. Scient. Stud. Relig., 5: 447-457.

Allport, Gordon W. and J. Michael Ross
1967 Personal religious orientation and prejudice. J. Pers. and Social Psychology, 5: 432-443.

Bahr, H., L. F. Bartel and B. A. Chadwick
1971 Orthodoxy, activism, and the salience of religion. J. Scient. Stud. Relig., 10:69-75.

Bellah, R.
1967 Civil Religion in America, in D. R. Cutler (Ed.), *The Religious Situation*. Boston: Beacon Press.

Blum, B. S. and J. H. Mann
1960 The effect of religious membership on religious prejudice. J. Social Psychology, 52: 97-101.

Bouma, G. D.
1970 Assessing the impact of religion: a critical view. Sociol. Anal., 31, No. 4 (Winter 1970): 172-179.
1973 Beyond Lenski: A critical review of recent "Protestant Ethic" research. JSSR, 12: 141-155.

Demerath, N. J. III
1965 *Social Class in American Protestantism*. Chicago: Rand McNally Co.

Feagin, J. R.
1964 Prejudice and religious types: a focused study of southern fundamentalists. JSSR, 4: 3-13.

Gabennesch, H.
1972 Authoritarianism as world-view. Amer. J. of Soc., 77: 857-875.

Gibbs, D. R., S. A. Mueller and J. R. Wood
1973 Doctrinal orthodoxy, salience, and the consequential dimension. JSSR, 12: 1, 33-52.

Glock, Charles Y. and Rodney Stark
1966 *Christian Beliefs and Anti-Semitism*. New York: Harper and Row.

Gorsuch, R. L. and D. Aleshire
1974 Christian Faith and prejudice: review of research. JSSR, 13: 282-308.

Gough, J. G.
1951 Studies of social intolerance: IV. Related social attitudes. J. of Social Psychology, 33: 263 269.

Gregory, W. E.
1957 The orthodoxy of the authoritarian personality. J. of Social Psychology, 45: 217-232.

Hadden, Jeffrey K.
1963 An analysis of some factors associated with religion and political affiliation in a college population. JSSR, 2: 209-216.

Kersten, L. K.
1980 *The Lutheran Ethic*. Detroit: Wayne State University Press.

Levinson, D. J. and R. N. Sanford
1944 A scale for the measurement of anti-semitism. Journal of Psychology, 17: 339-370.

Merton, Robert K.
1940 Facts and factitiousness in etlınic opinionnaires. American Sociological Review, 5: 13-18.
1968 *Social Theory and Social Structure* (revised and enlarged). Glencoe: The Free Press.

Middleton, Russell
1973 Do Christian beliefs cause anti-semitism? American Sociological Review, 38: 33-52.

O'Reilly, C. and E. J. O'Reilly
1954 Religious beliefs of Catholic college students and their attitude toward minorities. J. of Abnormal and Social Psychology, 49: 378-380.

Photiadis, J. D. and J. Biggar
1962 Overt conformity to church teaching as a function of religious belief and church participation. American J. of Sociology, 67: 666-672.

Rojek, D. G.
1973 The Protestant Ethic and political preference. Social Forces, 52: 168-177.

Rokeach, Milton
1960 *The Open and Closed Mind*. New York: Basic Books.

Roof, W. C.
1972 The local-cosmopolitan orientation and traditional religious commitment. Sociological Analysis, 33: 1-15.
1974 Religious orthodoxy and minority prejudice: causal relationship or reflection of localistic world view? American Journal of Sociology, 89:

Roof, W. C. and R. B. Perkins
1975 On conceptualizing religious salience in religious commitment. J. Sci. Stud. Relig. 14, No. 2, 111-128.

Verbit, M. F.
1970 The components and dimensions of religious behavior: toward a reconceptualization of religiosity, in Phillip E. Hammond and Benton Johnson (Eds.) American Mosaic: Social Patterns of Religion in the United States, pp. 24-39.

Wilson, W. C.
1960 Extrinsic religious values and prejudice. Journal of Abnormal and Social Psychology, 60: 286-287.

Zahn, G.
1970 The Commitment Dimension. Sociological Analysis, 31: 203-208.

At times some Christians have become unduly attached to precise wordings of doctrine—whether of events in the last days, the meaning of baptism, or the use of a catch phrase like "the inerrancy *of Scripture." But it is well to remember that all our formulations of Christian truth must ultimately conform not to some pre-set statement but to the Scriptures, all parts of which are divinely inspired. Thus sloganeering can never be a substitute for the careful patient analysis of what God's Word teaches, including what it teaches about itself.*

David Allan Hubbard

What We Believe and Teach, Fuller Theological Seminary, 1976

Dialogue

The Clockwork Image Controversy

J. A. CRAMER

Department of Physics

The King's College
Briarcliff Manor, N.Y. 10510

Donald M. MacKay in his book The Clockwork Image *argues that determinism as a scientific hypothesis does not imply "moral" determinism and that the conclusion that man is nothing but a complex machine is erroneous. Reasons are given for my belief that the arguments of the book are fallacious. Additionally, the dangers of any attempt to simply begin with his conclusions as assumptions are indicated. In particular, the inadvisability of following MacKay in a rejection of Occam's razor is discussed and an argument is made for the necessity of Occam's razor in Christian apologetics.*

I have been noting for some time now the reactions of *Journal ASA* book reviewers and my acquaintances to Donald MacKay's book *The Clockwork Image*. Most reactions have been favorable although I have detected occasional uneasiness. Few reactions have been unfavorable. My reactions fall in the last category as my letter in the June 1975 issue of the *Journal ASA* indicated. Unfortunately, my letter seems to have been more brief than lucid, and consequently I wish to discuss MacKay's arguments more fully and to explain more clearly those points at which I believe he is in error. The points at issue are sufficiently basic that the discussion should be of value in its own right.

MacKay's Argument

For the information of those unfamiliar with the book and as a reminder to those who have read it, I shall begin with a synopsis of Dr. MacKay's argument. This will also provide, not accidentally, a means of judging my impartiality and perceptiveness.

MacKay's intent is to provide an apologetic for the Christian confronted by "moral" determinism and "nothing-buttery". He recognizes materialistic determinism's insistence that men are nothing but elaborate machines as a threat to the reality of moral choices. In order to meet this threat, he argues in the following manner.

MacKay distinguishes determinism, as a scientific hypothesis identified with the doctrine of causality ("all physical events have physical causes"[1]), from "moral" determinism. This separation is achieved by first reminding us that modern physics has raised doubts about the universal applicability of causality. His main defensive position, however, is an argument leading to the conclusion that even if causality enabled accurate prediction of our behavior, such predictions would not be binding on us as we make choices. Thus, MacKay believes moral responsibility is compatible with scientific determinism and "moral" determinism is discredited.

If the argument thus far is correct, "moral" determinism is out but "the clockwork image" still remains. Therefore, MacKay directs his attention to "nothing-buttery," which is his term for the reductionistic doctrines of materialistic determinism. He claims that "nothing-buttery" results when scientific techniques are applied beyond their proper limits. His main defense

MacKay's conclusion that multiple and equally valid accounts of the universe are possible, amounts to a direct denial of Occam's razor (the law of parsimony.)

against "nothing-buttery" occupies the greater portion of the book. It consists of efforts to support the conclusion that "the 'nothing-buttery' assumption—that when you have verified a complete account in one set of terms you automatically debunk any others—is simply mistaken logic".[2] These are the essentials of MacKay's position.

I have sketched MacKay's argument in what seems to me the best possible order but the reader ought to be warned that the book's structure seriously obscures this order. The book is a collection of texts of talks given over a period of time and that in part accounts for the unfelicitous organization of the material.

I am disappointed that MacKay does not elaborate on the proper limits of science. In view of secular opinion that either there are no limits to the scope of science or reality is confined to what is scientifically knowable, it would seem that an elaboration is mandatory when the existence of limits to the applicability of scientific techniques is claimed. To be sure, MacKay does advance what he believes are examples of items of human emotional experience lying outside the realm of scientific examination. He seems dangerously unaware of the strength of materialistic and positivistic arguments against these examples. This failure to understand the force of opposing arguments is a constant feature of the book.

Scientific and Moral Determinism

The claim that scientific and "moral" determinism are separable may be true, but MacKay does not demonstrate it. The argument he adduces to support his claim involves the alteration in brain state occurring when a subject is informed of a prediction made by an observer. Intending to separate the two forms of determinism by exhibiting a situation where the two forms do not coexist, MacKay assumes scientific determinism holds in the above situation and attempts to show that "moral" determinism does not. He argues that the perturbation in the subject's brain state produced by being informed of the prediction either is sufficient to make the prediction untrue or, if the predictor were clever enough to adjust his prediction to account for the expected perturbation, the subject would still not be in the predicted state (and therefore not in error) after choosing opposite to the prediction. Thus, MacKay claims that the subject is not bound by the prediction and "moral" determinism does not occur in this situation.

I find three mistakes in this argument. (1) Scientific determinism is equated with predictability. Determinism is not even in principle equivalent to predictability (for remarks on this and an interesting discussion of free will and determinism, see the Mathematical Games section of the March 1974 issue of the *Scientific American*). (2) Most importantly the question is begged by assuming the subject may choose to believe or not to believe the prediction. The issue is precisely whether or not inescapable predictions are possible; to assume a choice is available to the subject is to decide the issue out-of-hand. (3) The situation used is defective. This may best be seen by asking what the proper conclusion would be if a perverse human subject falsified every prediction. If we conclude that the subject is therefore morally free, what will we say of a wholly determined computer made to play this same game under the orders that it always choose opposite to prediction? Also, if in the above contest with the computer the predictor was allowed to keep a secret record of what he really thought the computer would do, his record would be found later to have been perfectly correct. If the same thing were done with the perverse human subject, what should we then conclude about the determinedness of the subject's choices? The difficulty is that the relation of predictability to "moral" determinism is not clear.

By publishing this book, InterVarsity Press has performed a disservice for undergraduates similar to giving front line troops defective weapons.

"Nothing-Buttery"

The argument against "nothing-buttery" takes the form of an illustration whose conclusion is expanded to cover the desired territory. MacKay introduces an electric sign saying, "Bongo is good for you". He notes that we can explain the sign in terms of electrical circuits in general and the circuit of this sign in particular, or alternatively we can explain the sign in terms of its message and the purposes of the men who created it. Both explanations are clearly valid and mutually compatible. Thus, he concludes that "the 'nothing-buttery' assumption—that when you have verified a complete account in one set of terms you automatically debunk any others—is simply mistaken logic".[2]

The last step is either an argument by analogy or by unwarranted (and disputed) assumption. The analogy is: the electric sign can be explained in mechanistic terms and/or in terms of the meaning of words and the purposes of men, *and likewise* man and the universe can be explained in mechanistic terms and/or in terms of the meaning of life and the purposes of God. MacKay concludes that both types of description are equally valid.

For argument by analogy to succeed, the things compared must be shown to be sufficiently similar for the purposes of the argument. MacKay fails even to attempt the necessary demonstration. It is clear enough that the terms of the analogy are not simply equivalent. The purposes of God differ from those of men even in essence, and the word "meaning" has different meanings as applied to life or to words (if we admit that words have meaning, does it follow that existence has meaning?). If we allow the analogy, can MacKay's conclusion then be sustained? No, because another mistake is involved.

To the secular mind both explanations of the electric sign are basically mechanistic, although the meaning of the sign supposedly requires a more complicated mechanical explanation than does the mere circuitry. This is after all what "nothing-buttery" is all about. It is not admitted that the two explanations of the electric sign are really explanations in two different sets of terms. The example does not support the conclusion then unless "nothing-buttery" is false. The conclusion is assumed in the course of the argument

and we find once again a circular argument.

Occam's Razor

Now I want to examine MacKay's conclusion. He has not, as I have tried to show above, arrived at it properly, but is it nonetheless acceptable? I think not. His conclusion that multiple and equally valid accounts of the universe are possible, amounts to a direct denial of Occam's razor (the law of parsimony). If a *complete* explanation of the universe in one set of terms is indeed available, Occam's razor forces us to reject as superfluous any more complicated set of terms that might also comprise a complete explanation. It was on this basis, in part, that the Copernican system overthrew the Ptolemaic system. Occam's razor is two edged in that it not only requires the rejection of a more complicated explanation when a simpler one will do, but it also *requires* a more complicated explanation when a simpler one will *not* do. This law is so essential that I suspect it is a necessary part of thinking in much the same way that two-valued logic seems to be. It is certainly part of the thinking cap of the modern scientist and to reject it would seriously reduce the common ground on which we must stand in any attempt to witness to fellow scientists as well as increase any contempt they may feel for our intellectual respectability.

With respect to any conflict between science and religion, rejection of the law of parsimony has well-known tragic results. Science and religion then occupy their own separate (MacKay uses the confusing term "complementary") niches and are equally true. They cannot *conflict* because they cannot *contact*. Religion becomes useless baggage to the scientist, although without Occam's razor the scientist is no longer *forced* to throw out that baggage. The universe becomes the two-storied universe which Francis Schaeffer has criticized. Let me give an example of the effect of this in operation. Responding to MacKay's essay "From Mechanism to Mind"[3], John Beloff remarked,

> It would indeed be presumption on the part of an agnostic like myself to challenge MacKay on points of Christian doctrine or biblical exegesis. If he assures me that Christianity is quite compatible with the truth of Mechanism or Materialism, I am quite happy to take his word for it, but he must not complain if he has increased my suspicion that Christianity (at least as professed by someone at MacKay's level of sophistication) is compatible with anything at all.[4]

By publishing this book, InterVarsity Press has performed a disservice for undergraduates similar to giving front line troops defective weapons. We *must* retain the law of parsimony for it is actually our first line of defense and not an impediment. It is the law of parsimony that compels us to conclude from the fact of the resurrection that the scientific description of the universe is in fact *not* complete, and it is the law of parsimony that demands another explanation. It is clear that that search will require greater and better efforts than we have yet expended.

REFERENCES

[1]Donald M. MacKay, *The Clockwork Image*, InterVarsity Press, Downers Grove, IL 60515, p. 13
[2]*Ibid.*, p. 72.
[3]J. R. Smythies, ed., *Brain and Mind*, 1965, pp. 186-190
[4]*Ibid.*, pp. 194-195

DONALD M. MacKAY

Department of Communication

University of Keele
Keele, England

I am afraid that Cramer has sadly misunderstood each of the arguments he criticizes. Because I too am anxious that our "front-line troops" should not be sold useless weapons, I have accepted the Editor's invitation to reply.

Let me begin with three points on which there is no dispute whatsoever:

1. *Occam's methodological principle, that "entities should not be multiplied beyond necessity", is crucial to rational thinking in science and elsewhere, and must be retained and respected.* (Cramer, for reasons to be examined below, accuses me of a "direct denial" of it.)

2. *There are no biblical grounds for expecting special events such as the resurrection of Christ to be explicable on the basis of scientific precedent.* (See *The Clockwork Image*, p. 64). In that sense, neither Cramer nor I believe that a scientific explanation of the universe could in fact "account completely for all events", *even at its own level* (see below).

3. *Scientific determinateness is not to be equated with predictability.* Our inability to predict an event (as I expressly point out on p. 15 of *The Clockwork Image*) does not mean that it is *indeterminate*. "To describe a system as indeterminate is to imply not only that it is unpredictable, but (much more

Far from "denying" Occam's razor, statements in The Clockwork Image *presuppose it!*

strongly) that there exists no determining formula whereby future state-descriptions are completely and necessarily implied by present data."[1]

What, then, has misled Cramer, whose whole attack is designed (no doubt with the best of goodwill) to give the opposite impression of my position? Basically, it seems to be his failure to grasp the central contention of the book, that (p. 90) "different levels of description of reality are *logically necessary* in order to express all that truthfully needs to be said about it . . . Each reveals an aspect which *is there to be reckoned with,* but is unmentioned in the other". "One and the same situation may *need* two or more accounts, each complete at its own level". So far from "denying" Occam's principle, these statements presuppose it! They claim that in certain circumstances there *is* necessity not just for "more complicated terms", but for a whole new level of conceptualization, if we are to do justice to all that is there *to be reckoned with.* There is here no question of multiplying entities without necessity. The necessity is there to be discovered empirically, by finding that there is indeed something (or someone) to be reckoned with at the higher level.

My various examples (such as the advertising sign) that Cramer mistakes for "arguments by analogy" are simply proofs of the converse thesis, that the necessity for a given level of concepts *cannot be disproved* by demonstrating the completeness of another account at its own level.

Completeness

Evidently, despite all the illustrations, this notion of "completeness at its own level" has misled Cramer. To be sure, if an explanation of a situation in given terms were complete in the sense of *answering all possible questions* about the situation, then Occam would say that further concepts are unnecessary. But if, as in the case of an electronic computer (p. 72) the explanation in electronic terms does not even mention the mathematical significance of what is going on, the fact that it accounts completely for every *electronic event* does not in the least "force us to reject as superfluous" the mathematician's account in other terms. Anyone (with or without a "secular mind") who insists that the electronic explanation (because complete-in-its-own-terms) is the only valid or necessary one, would be self-evidently missing the point. Occam's razor offers him no defence, for the mathematician is amply prepared to show the necessity and relevance of his categories as well as those of the electronic engineer. There is no circularity, no violation of parsimony here. All the blunders would be on the part of the imaginary "nothing-butter".

My attack on anti-religious reductionism here, in other words, is a *reductio ad absurdum.* In order to show that the form of an argument is invalid, it is enough to find one good counter-example in which that form of argument would lead to an absurd conclusion. This is the purpose of my illustrations of "nothing buttery"—to show that the *logical form* of the ontological reductionist's argument is unsound, and not at all to argue by analogy from man's purposes to God's purposes, or anything of the kind. In my experience of "front-line combat" this *reductio ad absurdum* has proved quite a useful, if modest, weapon.

It is a pity in this connection that Cramer seeks support from the unfair remark by the agnostic Beloff. The context[2] was a discussion of mechanistic theories of *brain function,* which I claimed were not ruled out by the biblical doctrine of man. I believe that this is strictly true and defensible; but in any case, it offers no logical justification for the charge that on this view Christianity is compatible with Materialism, still less with "anything at all". To test the coherence of Cramer's logic at this point, consider again the computer. The electronic engineer has no need of the *categories* of the programmer in order to explain the events he observes in the computer; both his explanation and that of the programmer, like the physiological and the biblical accounts of man, are true and *necessary* for their respective purposes. But does this mean that the two explanations "cannot conflict because they cannot concontact"? Is the mathematical significance of what is going on therefore "useless baggage" to the engineer, "compatible with anything at all"? Such talk makes good rhetoric but bad logic. Front-line troops, beware!

Limits of Science

I made three main points (mainly pp. 36-39) about the "limits" of science.

1. They are *methodological,* not territorial. They arise wherever data are accessible only at the cost of participation, so that detachment is ruled out. (This covers far more than the "human emotional experiences" mentioned by Cramer, see ref. 3.)

2. They are *self-imposed.* "No part of the world of observable events is outside the boundary of scientific study . . . The limitations (of science) will show up rather in the restricted kinds of description his language allows (the scientist) to make of the events he studies, and the kinds of point he will be obliged to miss (theoretically) in consequence". (It is in elaboration of this point that I go on in the same section to expose the fallacy of "nothing-buttery".) Where the data in question are accessible only through becoming oneself *involved* as a participant (as in our experience of God), then (p. 39) scientific detachment is *ipso facto* impossible, and science is not arbitrarily excluded but "bows itself out". As I made clear (p. 36) this does not in the least preclude the *behavioural manifestations* of religious or any other experience from being scientifically studied by an outside observer for what they are worth.

3. Nevertheless, to refuse to expose oneself to knowledge available only through participation (such as is the knowledge of God), on grounds of "scientific conscience", would be irrational, and contrary to the scientific spirit of openness to evidence.

It is a pity that Cramer fails to specify the "materialistic and positivistic arguments" that so impress him. This makes comment impossible.

Determinism

On this Cramer has quite missed the point of the argument in *The Clockwork Image*. Briefly, if all you believe were rigorously represented by the detailed state of your brain, so that any change in your belief required a correlated change in brain-state, then no completely detailed specification of your immediately future brain-state could exist, with an *unconditional* claim to your assent (i.e., such that you would be correct to believe it *and* in error to disbelieve it). This has nothing whatever to do with counter-suggestibility on your part; it is simply a logical consequence of the assumption of complete correlation. It proves not just *unpredictability* (the impossibility of *discovering* a complete specification) but (logical) *indeterminacy* (the *non-existence* of a complete specification with an unconditional claim to your assent), even if your brain were scientifically-determinate. So no complete specification of your future can exist, unknown to you, that you would be correct to accept as *inevitable* now if only you knew it. In that sense, even if future brain states of yours were *scientifically* determinate, and predictable by others, they would not be inevitable (in every detail) for you.

To the extent that your future actions depended causally on these logically-indeterminate details of your brain-state, they too would not be inevitable-for-you. As I point out, all this requires us to recognize a logical "relativity principle", according to which the agent-view and the observer-view of a future action must *differ* systematically if both are to be correct.[4,5].

Finally, I pointed out that this whole argument relates to cognitive agents who have an "I-story" to tell. Unless we credit computing machines with conscious agency, it would be not so much false as nonsensical to call them "morally free", even if programmed as Cramer suggests. This point like several others he raises, is explicitly mentioned in the Appendix to the book, and in references given in Chapter 8.

Cramer has sadly misunderstood each of the arguments he criticizes.

I am sure that with Cramer's help I could have made *The Clockwork Image* a better book. As it stands it is evidently open to even greater misunderstandings than I had thought possible. I hope that this exchange may help fend off at least a few of these.

REFERENCES

[1]MacKay, D.M.: *Information, Mechanism & Meaning*, M.I.T. Press, 1969, p. 147.

[2]J.R. Smythies, ed.: *Brain and Mind*, 163-200, and Comments on pages 129-131, Routledge and Kegan Paul, 1965.

[3]MacKay, D.M.: *Information and Prediction in Science* (S. Dockx and P. Bernays, eds.), Symp. of Int. Acad. for Phil. of Sci., 1962, Academic Press, New York, 255-269, 1965.

[4]MacKay, D.M.: On the Logical Indeterminacy of a Free Choice, *Mind*, 69, 31-40, 1960.

[5]MacKay, D.M.: *Freedom of Action in a Mechanistic Universe*, (Eddington Lecture), Cambridge Univ. Press, London and New York, 1967. Reprinted in *Good Readings in Psychology* (M.S. Gazzaniga and E.P. Lovejoy, eds.), Prentice Hall, 121-138, 1971.

Notes on "Science and the Whole Person" —
A Personal Integration of Scientific and Biblical Perspectives

Part 3

The Philosophy and Practice of Science

RICHARD H. BUBE

Department of Materials Science and Engineering

Stanford University
Stanford, California 94305

Without a doubt, the scientific worldview is, in the minds of many people, the principal competitor with a Christian worldview. Because of this, many Christians are suspicious of any results of science, and on the other side many non-Christians are convinced that Christian faith is untenable. In this installment I attempt to summarize some of the foundations of science that show the close correlation possible between a scientific and a Christian worldview. A scientific description and a Christian description are not mutually exclusive alternates, but necessary descriptions to be held and considered at the same time. It is convenient to organize this topic into five categories dealing with the purpose, the possibility, the presuppositions, the posture and

the potential of science.

Purpose

The primary purpose of science is to *describe* the world in which we live. This description is carried out in terms of models (approximations, pictures, projections) of the way the real world is, in a simpler kind of framework. Such models are successful when they describe to a sufficent accuracy what we observe in the natural world.

There are two fundamental reasons why scientific descriptions are sought. We describe in order that we may understand the world and so that we may control the world.

It is at this point that the first connection with the Christian worldview is apparent. Although many people assume that it is a good and worthwhile activity to understand and control, the Christian position provides a foundation which others must somehow assume or perhaps take for granted without probing into the reasons underlying it. That it is good to understand, to have a theoretical knowledge of the world, and to control, to have an applied technology which enables us to act intelligently in the world, must be based ultimately, if on anything at all, on the Biblical doctrines of Creation and Providence. According to the Biblical doctrine of Creation, the world is a good world according to the creative purpose of God, and the evil that is all too real is an aberration upon this good world. God sustains the world moment by moment by his continuing activity, and without this activity the world itself would cease to exist. As we learn to describe the world more and more accurately, to understand it more completely, and to carry out the mandate given in Genesis 1:28,[1] we are carrying on a Christian activity, as well as a human, useful and pleasing one. A chapter I once wrote on physics for college students starts with the statement, "Physics is fun."[2] The aspects of science involved in understanding and controlling are pleasing and satisfying to the human being. That they are also good and worthwhile things to do has its basis in the twin Biblical doctrines that God has made the world, that it is indeed intrinsically a good world, and that it is a worthwhile endeavor to pursue what he has given to us.

Scientific description does not consist of every possible kind of description, nor does it exclude all other kinds of description. A scientific description is one particular kind of description. It's a description in which we deliberately say, "We are going to approach the world around us in a specific way. We are going to make those observations and measurements in which we can use our senses, both our natural senses and our extended senses through equipment. When we have the results of these measurements, we will make an interpretation of them in accordance with the laws of logic and reasonable evidence. We will furthermore insist that the things we see and describe in science will always have some kind of natural causes, that there will be a chain of natural cause and effect, and that there will be natural categories that we will look for as we describe things scientifically."

If one of my graduate students comes to me breathless from the laboratory crying, "Look, I have here a major contradiction of the fundamental laws of nature. It must be that God intervened and did something wonderful here," my first reaction as a scientist is to tell him, "Go back and try it again. See if perhaps a wire slipped loose, a battery burned out—or something else of equal significance—but nevertheless natural has occurred." This does not mean that I do not personally believe that God is totally free in the ways in which he may choose to act, but that in the normal course of events, which is the area to which science addresses itself, we are concerned with the description of events in terms of natural categories. Because we are limited by and concerned with natural categories, science itself never produces supernatural descriptions. No matter what I address myself to scientifically, it may be that I can describe it scientifically or that I cannot. But if I have a scientific description, it is going to be in natural categories. The fact that scientific descriptions do not contain supernatural elements is not somehow due to the perversiveness of scientists, but is due to the fact that scientists are attempting to be consistent within their own limiting methodology.

A scientific description is also only one possible kind of description. There are many kinds of description of the same event, process or being, some of which cannot be tested by the scientific method because they are not susceptible to analysis by sense contacts in the way that scientific descriptions must be. It is a false and foolish claim, as we discussed in Part 1, to say that a scientific description is the only kind of description that can lead us to a knowledge of the truth, the only one by which we can advance our knowledge of the world and of the things in it. To say that something is not scientific does not imply in any way that it is either false or unimportant. There are many aspects of life, in fact some of the most important aspects of life, which cannot be exhaustively described scientifically. The relationship between my wife and me could be partially described in terms of our bodies' physics and chemistry. But if it were supposed that this was an exhaustive description of our relationship, that there is nothing more to say about this personal interaction than what is contained in this kind of scientific description, the main point would be missed as to what I mean when I say that I love my wife and my wife loves me.

There are at least two ways in which every event that happens must be considered. One way is to say, "What is the description of this event in terms of natural cause and effect categories; what is the scientific description?" But we must also ask, "What is the meaning of this event? What is the purpose of this event? How does this event relate to God, to his purposes, to the flow of history, to ultimate reality?" Every event must in an ultimate sense be provided with both a natural and what might be called a supernatural description. What is a cow? Is it sufficient to reply only in terms of bovine biology? If such a description of a cow is ultimately adequate, then it is assumed that the possibility that the cow is a creature made by God is unimportant. But if indeed God has made the cow, this

---

A serial presentation of notes based on Freshman Seminars at Stanford University in 1974 *and* 1975, *and a course given at Fuller Theological Seminary in* 1974 *and at Regent College, Vancouver, B.C. in* 1976. *Part* 1, *"Science Isn't Everything" appeared in March* (1976), p. 33-37. *Part* 2, *"Science Isn't Nothing" appeared in June* (1976), p. 82-87.

knowledge is not unimportant. To know that a cow is a creature made by God for specific purposes, that it deserves at least the respect appropriate for a creature made by God, is something worthwhile knowing that cannot be derived from the scientific description alone. Man's attitude toward the earth is quite different if he believes that the earth is there only for his own benefit, or if he believes that he is entrusted with responsibility for care of the earth by God Himself.

It is essential to realize the possibility of—indeed the necessity of—parallel descriptions, different kinds of descriptions that are not mutually exclusive, but which reinforce each other although they are derived from asking different kinds of questions. If this were done consistently, we would be able to overcome many of the conflicts of our own and of the history of Christianity and science by leaving open the possibility that we need to look at things in more than one way in order to see them in their totality. Such problems as the brain vs the mind, the body vs the soul, determinism vs free will, Calvinism vs Arminianism, the non-living vs the living, evolution vs creation—all of these historic, profound and life-upsetting supposed conflicts ought not to be thought to involve contradictory and exclusive descriptions so that either one or the other must be chosen. Rather it is that in many cases they represent situations in which one must ultimately choose both options as one attempts to answer different kinds of questions.

A diagrammatic representation of the parallel descriptions given by science and by theology is shown in Figure 1. Unless the types of description and concept from both approaches are integrated, violence is done to the one reality with which both have to deal.

Possibility

It may seem strange to suggest a discussion of the possibility of science. After all, science is obviously possible, and we do it all the time. But reflect: how do we know that science is possible? Why should science be possible? Why should it be possible for us to approach the world scientifically and obtain at least partially true, reliable and useful descriptions? Why does the world not contantly change before us? Why are our minds adequate to the task? Why are our finite imaginations sufficient to do as much as they have?

The question, "Is science possible?" is a fundamental question that must be asked in science and cannot be simply glossed over. Those who take a non-Christian position do not hesitate to ask Christians or theists "Does God exist?" Then this question is followed with the inevitable, "Prove it." There is a ready response; it is to ask, "Is science possible?" They would reply, "Oh yes, of course." Then must follow our request, "Prove it." Of course it can't be proved except by the doing. It's the doing that gives evidence for its possibility, and the situation with respect to God's existence is quite similar. The evidence that God exists can be known only through relationship with him. It is not possible to know that God exists outside that relationship by which God becomes real *to you*. (Not that God requires the relationship, but that you require it.) Just as one cannot possibly do science while believing it impossible, one cannot possibly come to know whether or not God exists when believing that he does not. Both science and

The primary purpose of science is to describe *the world in which we live.*

Christianity start with faith. A man says, "I believe that science is possible; "I'll go out and test it." A man says, "I believe that God exists; I will relate myself to him, using if I must that well-known prayer, 'Oh God, I don't know if you are there or not, but if you're there, answer my prayer.'" There is no other way that one can gain assurance in either area than through this kind of act of faith.

In fact, any act of significance starts with a faith commitment, because an act of faith is always required when we don't have complete knowledge. We never do have complete knowledge. All we have is sufficient evidence to justify our faith; that is all we really ask for in either science or the Christian position. As science becomes possible as its possibility is accepted on faith, so also the knowledge of God's existence becomes a reality as we accept it on faith and test it.

The possibility of science in the Christian perspective once again depends upon the Biblical doctrines of Creation and Providence. It is because God has made something that it is possible for us to investigate, and because God does sustain the world, that it is possible for us to carry on from day to day the pursuit of science. That there should be a structure to reality suitable for scientific investigation must be either a fantastic result of pure Chance, or it is based on the Christian position of Creation and Providence.

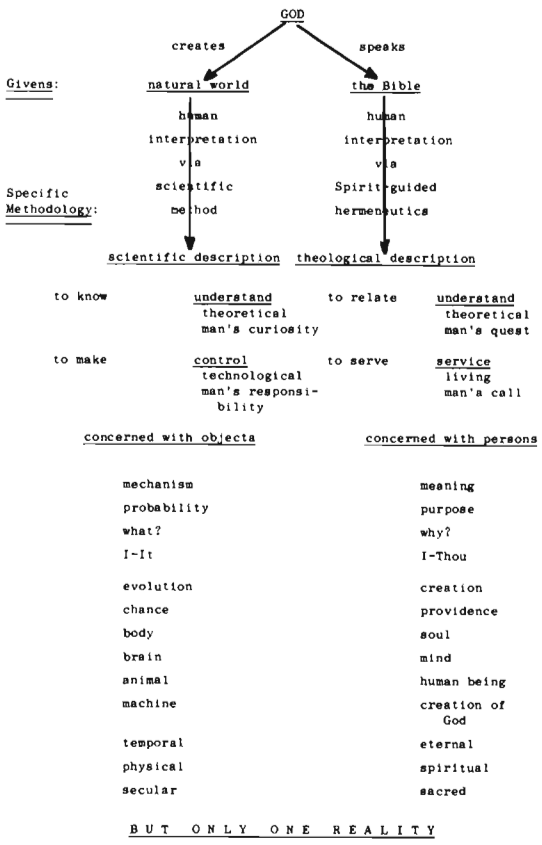


Figure 1. The development and product of scientific and theological descriptions of the one given reality, emphasizing the need for "both/and" rather than only "either/or" approaches.

Presuppositions

A Christian sees science as possible because it is a reasonable thing to step out in faith on the basis of the Biblical doctrines of Creation and Providence. What are some of the presuppositions of science that are needed in order to step out in faith?

It must be assumed that the world is understandable through rational processes of the human mind, that the human mind can conceive analogies and models which adequately describe the natural world. It must be assumed that natural phenomena are reproducible in some general and universal sense; if we fix a standard condition, it is possible to get the same results in the United States or the Soviet Union, under a Republican or a Soviet government, in South Africa by a black man under apartheid or at the South Pole by an eskimo. When one makes such assumptions and tests them, he finds in many cases that they are indeed justified and worthwhile. Nevertheless he had to assume them and act before he could know that they are reliable. He also has to assume that there are patterns of order that can be sought out and found. It is sometimes claimed that man forces his concept of order upon the universe; there may be examples of this, but I find it hard to see many examples where such a claim could possibly be maintained (e.g., could the Periodic Table of the Elements *not* be actually descriptive of atomic structure?).

Another striking experience is the way in which so often men's minds working in abstract mathematics have developed a system of principles, postulates theorems or the like, which then at some later time turns out quite independently to describe with remarkable accuracy the actual events taking place in the physical world. Whenever I discuss the solution of the Schroedinger equation for the energy levels of the hydrogen atom, I cannot help but remark on the wonder generated by the fact that a simple differential equation leads directly to the basic structure of the hydrogen atom on the condition only that its solutions not violate what is possible in the physical world.[3]

Why should these presuppositions be accepted? Why should we think that these presuppositions are valid and reasonable? The Christian answer is that they are reasonable because there *is* a given structure, there *is* an objective reality, there *is* subject matter for the pursuit of science. Furthermore we are made in the image of God and therefore have the possibility of understanding at least partially what this structure is like.

On the other hand, private presuppositions have no place in science. We cannot say, "I suppose that such and such must be found in a scientific investigation; therefore I will go out and prove it." As soon as that is said, as soon as we import some kind of philosophical or even religious presupposition and attempt to impose it upon science, then we may be doing something significant philosophically or religiously, but we have ceased to do science. To consider this aspect further, we need to consider the posture of science.

Posture

The posture of science derives from the fact that a structure of reality has been given to us, to which we must be open. In doing science, the universe is normative and not I. I must subject myself to the world, not subject the world to me. There are problems with a position like this, for in doing science I do become involved in my scientific investigation, the more so as my science is more personally and less physically oriented. Nevertheless, an effective science is one that says simply that I will be open to what is. In my science I wish to find out not what should be, not what might be, nor what could be, but only what *is*, and I will do my best to find out what *is* from the world rather than trying to impose my ideas arbitrarily upon it.

Just as one cannot possibly do science while believing it impossible, one cannot possibly come to know whether or not God exists when believing that He does not.

Is there anything basically Christian about this posture? Others who are not Christians may take a similar attitude. But it may be argued that if this posture is viable, the basis for it must once again be found in the Biblical doctrines of Creation and Providence. There is a created structure given to us; our pursuit of the knowledge of truth requires us, not to fabricate or invent a structure, but to determine what the given structure is. Even the theoretician, with his most beautiful theory, must ultimately say, "Now comes the crunch. Does my theory correspond to the way things are insofar as this can be tested by experiment?" The real structure must be contacted and tested in order to see whether any concept, any model of it is adequate to describe it.

The commitment of a Christian view of science is to explore and understand this given structure on its own terms. Although we could argue at great length (and truly) that no fact interprets itself, that every experiment is affected by the theoretical context in which it is planned, that every interpretation is guided by what we think it should be—nevertheless, good science attempts to avoid this kind of problem as much as possible. Good science tries to survey the results of one's experiments with an open mind (within a creative flexible conceptual scheme) so that we may come as close as possible to "hearing" what the world has to say to us as we carry on our experiments. The posture of science is one in which the created universe is trusted to be a faithful witness to itself.[4]

One might raise the question, "Why are non-Christians so successful in science?" The non-Christian is successful in science when, and only when, he, without basic justification, adopts a Christian-like view of the world, even though he himself may not or will not admit it. The non-Christian is successful in science when he is open to the created order, when he adopts the methodology based on saying, "There is something given to me and I will be open to it." As soon as the non-Christian (or, of course, the Christian too) says, "Reality is subjective and susceptible to my opinion, so that I can enforce my political or religious ideas upon it," he ceases to be a good scientist immediately. It does not matter whether the motivation for this statement is ecclesiastical (as in some of the unfortunate interactions between the church and science) or political (as in the Lysenko case in the Soviet Union.) Science

comes to a dead stop when someone says, "This is the way the world must be philosophically, and therefore you better find it that way scientifically." People may try very hard to do this, and even appear to be successful for a time, but ultimately the given structure of the world wins out and they fail. An Aristotelian view of the universe ultimately falls before the reality of the existing universe; the biological theory capable of producing more and better corn must be faithful to the real world, not only to Marxist dialectical materialism. For the Christian the world *is* given; for the non-Christian success in science demands that he act *as though the world were given.*

Once this posture of openness is adopted, we have freedom in our scientific activity, freedom from conflict between our preconceptions of what we must find in science and what we *do* find in science. If we attempt to force a scientific perspective upon our theology, we have bad theology; if we attempt to force a theological or philosophical perspective upon our science, we have bad science. There is no need for either. Our scientific description cannot be expected to be *identical* to our theological description; if this were the case, we would not have the need for both. But we do need both kinds of description since they are complementary and not mutually exclusive.

Potential

What is the potential of science? The posture of science in which openness to the created structure is emphasized represents the passive aspects of science: here effort is made to allow the structure to impress itself upon us. The potential of science emphasizes the active aspects of science: here effort is made to apply the knowledge gained through scientific inquiry in responsible action.

First of all, science is a human endeavor. It is a process and a practice carried out by human beings. It therefore has no more intrinsic claim to universal helpfulness than any other human endeavor. Whether science or any other way of advancing knowledge produces a good or an evil result depends upon the way men use it. And the way in which men use it is not derivable from science itself, but must be decided on other grounds that transcend science alone. A scientific investigation does not prescribe its own application.

As soon as we import some kind of philosophical or even religious presupposition and attempt to impose it upon science, we have ceased to do science.

Science is not a competitor with Christian faith. It is rather a helpmate; it enables us to exercise our moral and ethical directives intelligently rather than foolishly. Science is one means by which Christians can seek to serve the world. Science is *per se* no more distinctive than education, or social service, or politics or other kinds of human endeavor by which we, as well as non-Christans, seek to serve in this world. It has its own unique powers, its own unique methods, its own unique possibilities.

Most of the previous discussion in this installment that attempted to integrate science and Christian faith emphasized the basic contribution of the Biblical doctrines of Creation and Providence. In discussing the potential of science in terms of service, we must see the emphasis provided to us by the Bibical doctrine of Redemption. Here is an opportunity for Christians who have been personally redeemed by Christ to serve him and their fellowmen in a particular mode of life, a particular approach to the needs, desires and necessities of living in this imperfect world. In some small and perhaps insignificant way the scientist as Christian has the possibility of showing in his own limited sphere the first fruits of the ultimate universal redemption. God has claimed all things for himself in Christ and will claim them ultimately in fact. Christians living today have the opportunity and the privilege to live as "minute men" of the complete redemption. This calls for service and for commitment.

We explore more fully in a later installment the tensions between present and future, between optimism and pessimism, that confront a person involved in a scientific career. For the moment it is sufficient to note that a Christian does science recognizing that it does have a potential but that its potential is limited. He looks to the future in order to do what needs to be done in his environment in the present. He looks to God in the face of what seems to be temporal pessimism so that the optimism generated from eternity may enable him to serve here and now in the way in which he is called.

A short story told by the physicist von Weizsäcker[5] out of his personal experience may help to crystallize this perspective. von Weizsäcker worked in nuclear physics in Germany during the second World War. He was increasingly troubled by the effects of nuclear science and the uses to which his own research might be put by power-hungry men like Hitler. He wondered after the war whether he should continue in nuclear science; although he saw great potentials for good in the advancement of knowledge and the development of energy sources, he also saw great potentials for evil. One weekend he was staying at the home of the German theologian Karl Barth. He discussed this question with him at some length and asked his opinion. "What shall I do?" Karl Barth answered him, "If you believe in the second coming of Christ, continue in your physics; if you don't, drop it." By this advice I think Barth meant to say that we can live and be productive in the present only as our own perspective of the future and the whole of reality is properly focused. It is only if we really believe that God is in charge that we dare to face the ambivalences of scientific success.

Summary

The philosophy and practice of science can be conveniently described under five headings: purpose, possibility, presuppositions, posture and potential. In each case it is possible to show how the foundation and interpretation of science and its practice can be directly related to the Christian faith.

The purpose of science is to describe the natural world so that understanding and control of it may be increased. A scientific description is not an exhaustive or exclusive description, but is rather one among several different types of description that are possible. All types of description are needed for completeness.

If we force a scientific perspective upon our theology, we have bad theology; if we force a theological perspective upon our science, we have bad science. There is no need for either.

The possibility of science is not something susceptible to logical demonstration before the doing of science, but must be accepted on faith in order to make the doing of science possible. Science is not, therefore, somehow different from all other human activities, but must also start with an act of faith and of personal commitment. A person who does not believe that science is possible can never do it.

The faith commitment referred to here involves the acceptance of a number of basic presuppositions about the natural world and our ability to describe it in a meaningful way. But although science cannot proceed without the making of presuppositions, these must not prescribe the content and conclusion of science.

Any attempt to dictate the results of scientific inquiry from convictions derived from philosophy or religion is a violation of the posture of science, which must be one of openness before the given structure of reality. Success in science demands the same posture of openness of Christian and non-Christian alike. If it is argued that the Christian has a basis for this posture in the Biblical doctrine of Creation, it follows that the non-Christian is successful in science only when he adopts the same posture, only when he approaches the structure of physical reality as though it were given and not subject to his subjective control.

The potential of science is to be one means of service to the world. It is not the only means of service, but it can inform and guide many types of service. Science is not a competitor with Christian faith, but an ally and help. In like manner the realistic faith required to carry on science in spite of the ambivalence of its consequences requires trust in the ultimate control of God over all things.

TOPICS FOR DISCUSSION

1. In "The Historical Roots of our Ecologic Crisis" in *Science* 155, 1203 (1967), Lynn White argues that by exalting man at the expense of nature (according to the Genesis accounts) Christianity has separated man from nature, argued against the unity between man and nature, and has given divine sanction to unlimited exploitation and environmental abuse. Is this an accurate diagnosis? Where did White get this idea?
2. Some day a fairly complete description of "love" may be given in terms of a series of biochemical reactions and brain patterns which are observed to represent the state of the body when the person is engaged in "loving." Will this mean that the real nature of "love" will finally have been found out? After that will we stop using the word "love," since now our ignorance about it will have been removed?
3. A crucial point in my own life was when I decided which graduate school to attend. From that decision has followed my marriage and the whole shape of the rest of my life. Yet that was a purely "chance" decision: i.e., I chose that school (out of several) which would offer me financial aid. I had no control over this offer and no way to predict whether or not it would be coming. Am I mistaken or only sentimental to view this *same* occurrence as an activity of God's providence?
4. Can there be anything sacred in our experience which does not involve the secular? Can there be anything secular which is not, at least to the Christian, also sacred? Correlate your answers to these questions with the historical fact that it has been the Christian position that has desacralized nature, i.e., has done away with animism and spiritism in inanimate objects.
5. Can you think of any act of significance that you might do, which does not start and depend critically upon a faith commitment of some sort? Does this have any correlation that we are persons and not simply objects?
6. Members of the Creation Research Society "are committed to full belief in the Biblical record of creation and early history, and thus to a concept of dynamic special creation (as opposed to evolution), both of the universe and the earth with its complexity of living forms. We propose to re-evaluate science from this viewpoint. . . ." Are the members of the CRS engaged in scientific work according to this statement?
7. Why are the findings of genuine science more long lasting and "powerful" than opinions and ideas generated from philosophical, political or religious presuppositions?
8. If it is not possible to do science with the assurance that good will certainly come out of it, does this mean that the scientist need not discriminate at all with respect to the kind of research problems he undertakes? Are there problems for which it is virtually certain that a greater degree of evil will result than good?

FOOTNOTES

[1]"And God blessed them, and God said to them, "Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth.' " (RSV)

[2]R.H. Bube, "Physics" in *Christ and the Modern Mind*, R.W. Smith, Ed., Inter-Varsity Press, Downers Grove, Illinois (1972), pp. 295-303.

[3]The solutions must be mathematically well-behaved. See, for example, R.H. Bube, *Electronic Properties of Crystalline Solids*, Academic Press (1974) p. 70.

[4]In case this seems to be a trivial assertion, consider that it is not held by everyone discussing issues in science and religion today. Those who argue, for example, that the earth is only some 10,000 years old even though scientifically it appears to be several billion years old because it came into being with the *appearance* (but not the reality) of great age, directly contradict this posture.

[5]J.A. McIntyre and R.H. Bube, "The Relevance of Science to Practical Theology: a Conference Report," *Journal ASA* 24, 27 (1972).

OTHER READINGS

R.H. Bube, "A Christian View of Science," The Reformed Journal 23, No. 6, 12 (1973)
"A Christian Philosophy of Science," Inaugural Year Addresses, Hope College, Holland, Michigan (1973)
The Human Quest: A New Look at Science and Christian Faith, Word, Texas (1971)

J.T.Davies, *The Scientific Approach*, Academic Press, N.Y. 2nd Ed. (1973)

D.L. Dye, *Faith and the Physical World*, Eerdmans, Grand Rapids, Mich. (1966)

G.Holton, *Thematic Origins of Scientific Thought: Kepler to Einstein*, Harvard, Ma. (1973)

M.A. Jeeves, *The Scientific Enterprise and Christian Faith*, Tyndale (London) (1969)

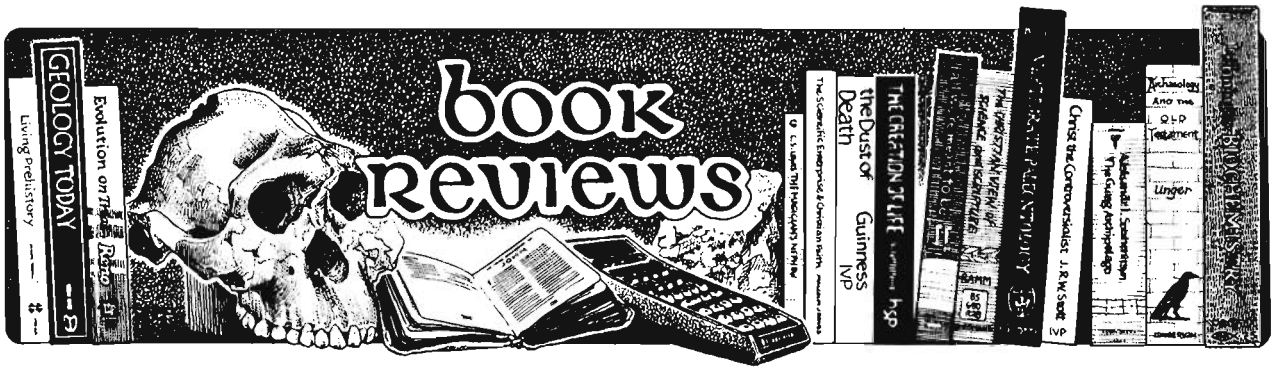
W.G. Pollard, *Chance and Providence*, Scribners, N.Y. (1958). *Physicist and Christian*, Seabury, Greenwich, Conn. (1961)

J.R.Ravetz, *Scientific Knowledge and its Social Problems*, Oxford, N.Y. (1971)

H.K.Schilling, *Science and Religion*, Scribners, N.Y. (1962)

R. Schlegel, *Inquiry Into Science*, Doubleday, Garden City, N.Y. (1972)

A. van der Ziel, *The Natural Sciences and the Christian Message*, Denison, Minneapolis, Minnesota (1960)



COMPUTER POWER AND HUMAN REASON—FROM JUDGMENT TO CALCULATION by Joseph Weizenbaum. W. H. Freeman and Company, San Francisco, California (1975). 300 pages. $9.95.

A policeman saw a drunk searching for something under a lamppost. "What have you lost, my friend?" the policeman asked. "My keys", said the drunk. The policeman then helped the drunk look and finally asked him: "Where exactly did you drop them?" "Over there", responded the drunk, pointing toward the dark street. The policeman then asked: "Why are you looking here?" The drunk immediately replied: "Because the light is so much brighter here."

It is in this manner that science proceeds too. For in science two things matter:

> the size of the circle of light that is the universe of one's inquiry, and the spirit of one's inquiry. The latter must include an acute awareness that there is an outer darkness, and that there are sources of illumination of which one yet knows very little. . . Science can proceed only by simplifying reality. The first step in the process of simplification is abstraction. And abstraction means leaving out of account all those empirical data which do not fit the particular conceptual framework within which science at the moment happens to be working, which, in other words, are not illuminated by the light of the particular lamp under which science happens to be looking for keys. (p. 127).

It is from the perspective of this parable that Joseph Weizenbaum, noted computer scientist, examines the claims of many of his colleagues that computers will someday become "like men". As an example, Weizenbaum points to H. A. Simon's statement.

> An ant, viewed as a behaving system is quite simple. The apparent complexity of its behavior over time is largely a reflection of the complexity of the environment in which it finds itself". . . . I should like to explore the hypothesis, but with the word 'man' substituted for 'ant'. A man, viewed as a behaving system is quite simple. The apparent complexity of his behavior over time is largely a reflection of the complexity of the environment in which he finds himself . . . I myself believe that the hypothesis holds even for the whole man (p. 128)

Weizenbaum succinctly responds pinpointing the weakness of this perspective.

> The hypothesis to be tested here is, in part, that the inner environment of the whole man is irrelevant to his behavior. One might suppose that, in order to test it, evidence that might be able to falsify it would be sought. One might, for example, study man's behavior in the face of grief or of a profound religious experience. But these examples do not easily lend themselves to the methods for the study of human subjects developed in psychological laboratories. Nor are they likely to lead to the simple things an experimenter's hypotheses lead him to expect. They lie in the darkness in which the theorist, in fact, has lost his keys; but the light is so much better under the lamppost he himself has erected. . . . The circle of light that determines and delimits his range of vision simply does not illuminate any areas in which questions of say, values of subjectivity can possibly arise (p. 130).

Weizenbaum is deeply concerned that both scientists and laymen develop a balanced perspective on the true nature of the human mind as compared to the modern computer, a symbol-manipulating machine that at times appears to be an information-processing machine of universal scope and power. "Is the mind nothing more than a superbly complex machine or is life simply a program running on an enormous computer (front jacket)?" These are the questions that Weizenbaum addresses himself to. Weizenbaum's central thesis as highlighted by the parable of the drunk, lamppost, and key is that human beings, like all other organisms, are defined by the problems they confront. And, of necessity, men and women must confront problems that arise from their unique biological and emotional needs; no other organism, or computer, can confront human problems in human terms. If we attempt to solve genuinely human problems by computer techniques and analysis, we limit ourselves to the examination of a highly selected domain of reality, namely, that which is expressible in quantitative terms and capable of being manipulated in a strictly logical, mathematical way.

In making this claim, the author is not attempting to downplay true rationality, for a truly human rationality is not limited to logical analysis alone; for such rationality cannot be separated from the whole of man's experience which contains both intuition and emotional content. True human rationality is a synthesis of logic, intuition and feeling. It is especially significant that Weizenbaum envisions human rationality as having an ethical component as well. Much of valid human experience and insight is thereby ignored in the dark-

Books Received and Available for Review

(Please contact the Book Review Editor if you would like to review one of these books.)

Hall, B. P., *The Development of Consciousness: A Confluent Theory of Values,* Paulist Press, 1947

Lum, Ada, *Single and Human,* IVP, 1976

Trobisch, W., *Love Yourself: Self-Acceptance and Depression,* IVP, 1976

Terry, R., *The Long Suffering: What it Means to be an Alcoholic in Today's Society,* Paulist Press, 1976

ness which is beyond the lighted circle of the "computer lamppost".

As a final example of the author's approach, consider the chapter on Incomprehensible Programs where the danger to society of ignoring the meaning expressed in the parable of the "computer lamppost" is carefully spelled out in the context of removing the "human part" of human history.

> Our society's growing reliance on computer systems that were initially intended to 'help' people make analyses and decisions, but which have long since both surpassed the understanding of their users and become indispensable to them, is a very serious development. It has two important consequences. First, decisions are made with the aid of, and sometimes entirely by, computers whose programs no one any longer knows explicity or understands. Hence no one can know the criteria or the rules on which such decisions are based. Second, the systems of rules and criteria that are embodied in such computer systems become immune to change, because, in the absence of a detailed understanding of the inner workings of a computer system, any substantial modification of it is very likely to render the whole system inoperative and possibly unrestorable. Such computer systems can therefore only grow (p. 236).

Weizenbaum indicates how such reliance on computer technology can result in the computer becoming an instrument for the destruction of history.

> For when society legitimates only those 'data' that are 'in one standard format' and that 'can easily be told to the machine', then history, memory itself, is annihilated. *The New York Times* has already begun to build a 'data bank' of current events. Of course, only those data that are easily derivable as by-products of typesetting machines are admissable to the system. As the number of subscribers to this system grows, and as they learn more and more to rely on 'all the news that is (was once) fit to print', as *The Times* proudly identifies its editorial policy, how long will it be before what counts as fact is determined by the system, before all other knowledge, all memory, is simply declared illegitimate? Soon a supersystem will be built, based on *The New York Times'* data bank (or one very like it), from which 'historians' will make inferences about what 'really happened,' about who is connected to whom, and about the 'real' logic of events. *There are many people now who see nothing wrong in this* (italics mine— p. 238).

I have highlighted only a few key points in this stimulating and provocative book. Christians and non-Christians will be helped by this book to become more fully aware of the dangers inherent in our society over-depending on computer technology as a universal instrument for solving all uniquely human problems. Weizenbaum makes two points, in conclusion, which are very much in the spirit of C. S. Lewis' *The Abolition of Man*.

> 1. Man in order to become whole, must be forever an explorer of both his inner and his outer realities. His life is full of risks, but risks he has courage to accept, because, like the explorer, he learns to trust his own capacities to endure, to overcome. What could it mean to speak of risk, courage, trust, endurance, and overcoming when one speaks of machines (p. 280)?
> 2. Science promised man power. But, as so often happens when people are seduced by promises of power . . . the price actually paid is servitude and impotence (rear jacket).

Reviewed by W. Jim Neidhardt, Department of Physics, New Jersey Institute of Technology, Newark N. J. 07102.

PIERRE TEILHARD DE CHARDIN'S PHILOSOPHY OF EVOLUTION by H. James Birx, Springfield, Ill., Charles C. Thomas, 1972, 192 pp. $9.75.

Perhaps *the* epistemological question of our century is: Can a synthetic worldview encompassing science, philosophy, and theology be attained? P. Teilhard de Chardin has argued:

> Like the meridians as they approach the poles, science, philosophy, and religion are bound to converge as they draw nearer to the whole. (*Phenomenon of Man*, p. 30)

In the post-Teilhardian world the question takes on a new form: Can a philosophically sound, scientifically rigorous, and religiously orthodox synthesis be accomplished? H. James Birx holds that the synthesis is necessary but only possible if we eradicate the theological component. This expurgation is mandatory not because of any connotation of "orthodox" but because of the nature of the religious *per se*.

The book's inscription written by Ernst Haeckel reads:

> The climax of the opposition to modern education and its foundation, advanced natural philosophy, is reached, of course, in the Church. . . . (p. vii)

Birx, following in this vein, mounts a systematic attack on the supposed synthesis of Teilhard. It is not the synthetic enterprise *per se* but the input from theology and religious motives that rightly deserves our immediate dismissal. Explicit is the conviction that the *only possible synthesis is one under the auspices of a thorough-going materialistic naturalism*. It is in this sense that the ". . . historical materialistic (Birx) can reinterpret Teilhard as Marx reinterpreted Hegel." (p. xvii)

After a brief introductory account of Teilhard's life and work, Birx focuses on what he takes to be Teilhard's four central claims: 1) Evolutionary Monism, 2) Complexity-Consciousness, 3) Critical Thresholds, and 4) Omega Point. Methodologically, in a chapter devoted to each, Birx summarises the relevant Teilhardian literature, pointing especially to the religious import and motivation. This is followed by a survey of the evolutionary literature characteristically divided into two camps: 1) the naturalists or others that Birx agrees with and 2) the non-naturalists, non-mechanists, and others who are wrong-headed. The concluding analysis roughly takes the form: Whatever is clearly evidenced by science in Teilhard's claim can be totally and unambiguously accounted for within a total naturalism and the rest should be discarded. The reader must be impressed by two things: 1) Birx's erudition in the evolutionary literature, and 2) his disdain for the theological and "mystical" in Teilhard's system.

Several themes dominate the book. For one, Birx wants us to appreciate the fact that Teilhard was honestly attempting a comprehensive synthesis. "The uniqueness of the Teilhardian synthesis is that it is so successful in incorporating these distinct levels of knowledge, . . . (i.e., science, theology, philosophy, and mysticism)," (p. 139) he says. Further the author emphasizes that really there is in Teilhard nothing radically new except this synthesis. To this end he offers the somewhat detailed account of other evolutionary writers demonstrating Teilhard's actual or pos-

sible sources. But most significantly we are to learn from our reading of Birx that after all, the synthesis of Teilhard must be judged a failure.

Teilhard failed precisely because he tried to synthesize science and *religion*. Teilhard, as is typical with religious thinkers, Birx claims, ". . . uses faith to understand." (p. 141) In accord with Freuerbach, faith "is the idea that that which man wishes actually is." (p. 143) Therefore, in the final analysis, ". . . Teilhard's synthesis has not resolved the real dichotomies between religion and science." (p. 155) For Birx the dichotomies are unresolvable because science and religion are alien, the one dealing with empirical truth, the other with historically conditioned "faiths." But there is a value which justifies the study of Teilhard.

> His sincere and bold attempt to reconcile evolution and theism will rather tend to increase the acceptance of the scientific conception of evolution over orthodox Christianity and mysticism. Hopefully, the natural descent or ascent of man from Miocene hominoids will be recognized as scientifically true. (pp. 155-156)

Thus we see that Teilhard's significance lies in the accommodation of Christianity to evolution, facilitating the future abandonment of the religious altogether in affirmation of evolutionary naturalism.

The intent of the book is explicitly to point out the failure of Teilhard, but in the end, the failure of the author is the more astonishing. Birx time after time points to the historically and personally conditioned (by this he means limited) religious input in Teilhard's system. In its place he offers a naturalism which it appears has escaped unscratched by historical conditioning!

> Human inquiry is not free from value judgments, for scientists, philosophers, and theologians have vested interests. As such no philosopher's system springs forth outside of his historico-social conditions. (p. 3)

But if we take this claim seriously it cuts across not only Teilhard's but Birx's account as well. Birx implicitly recognizes this in the entire construction of the book. For if one looks closely he will see that Birx nowhere presents a systematic *argument* for accepting his naturalism *vis a vis* Teilhard's synthesis. Apparently we are to join the naturalists because of the ascendancy of naturalism in our historically conditioned culture, not because of the consideration of reasons or arguments! This reviewer sees little appeal in what turns out to be another form of mysticism, but much value in the attempt for a philosophically sound, scientifically rigorous, theologically orthodox synthetic worldview. Besides, there are satisfying *reasons*, in spite of contemporary prejudice, for believing in the possibility of such a worldview.

Reviewed by William J. Hawk, graduate student in philosophy, Vanderbilt University, Nashville Tennessee.

THE CASE FOR CREATION: an Evaluation of Modern Evolutionary Thought from a Biblical Perspective, by Wayne Frair and P. William Davis, revised edition, Chicago: Moody Press, 1972, 93 pp., $1.25.

This slender book was not designed primarily for scientists. That being the case, its relative lack of polemics, and of making strong statements where the evidence doesn't warrant it, is especially commendable. As indicated by the title, Frair and Davis have a case to make. I agree with their case, and believe that on the whole they have presented it fairly and with scientific accuracy.

As an example, this paragraph from p. 64:

> It appears that hurdles preventing synthesis of a self-reproducing bit of life are formidable, even in the light of our best procedures and most sophisticated equipment. Some of our best scientists are expending great efforts in this field in order to surmount the barriers which face them, but so far no life has been produced either intentionally or unintentionally. If we cannot produce life intentionally, then how unlikely it is that it could ever be done by accident. However, many scientists are of the opinion that life came into existence by chance. This cannot be proved, as we cannot prove that life came into existence by the hand of the Creator. But we accept the latter of the two explanations, which is in accord with God's revelation in Scripture, as more logical and satisfying.

Needless to say, *The Case for Creation* is not perfect. There are examples of muddy thinking, such as "often organisms with striking similarities are clearly unrelated" (p. 21). Unrelated on what level, or by whose definition? An accompanying diagram (p. 22) demonstrates further that similarity and relationship need definition. Another lack of clear definition is

that there are parts of the book which seem to unchristianize theistic evolutionists by implication.

How much Frair and Davis' book is like its own earlier edition (1967) I cannot say. I do find it enough unlike other "cases for creation" books to make it worthy of recommendation.

Among the features that are more or less unique are:

Not including the *Genesis Flood* in the bibliography. (*The Twilight of Evolution*, by Henry Morris, is included.)

An apparent understanding of how mutations can be bad for an individual, but how the *capacity* for mutation can be good for a *population*, at times. (pp. 26-28)

Some comprehension of numerical taxonomy (p. 33). (Frair and Davis' case could have been strengthened by the arguments presented by Hull in *Annual Review of Ecology and Systematics*, vol. 1, 1970. pp. 19-54)

Reference to protein sequence comparison data. (p. 46)

Dealing with the symbiotic theory of evolution. (pp. 67-68)

The argument that it is *religion*, not intelligence, that distinguishes man from animals (Chapter 5).

Tolerance toward the possibility of adaptive radiation in the Australian marsupials.

Recognition that comparative studies rest on the assumption that similarity implies common ancestry.

The Case for Creation is a valuable book. Its price makes it a candidate for collateral reading in biology classes.

Reviewed by Martin LaBar, Division of Science, Central Wesleyan College, Central, South Carolina 29630

A second review of *The Case for Creation* . . .

The main thesis of this book sems to be that it is time for Christians to start an experimental attack on the problems of evolution. One of the primary tasks is taken to be the determination of the 'natural categories' or kinds. In the preface, we read that

> . . .speculation by Christians . . . have not been based upon experimental attacks upon the problem, and hence have not grappled with the real issues . . .

Christian attacks have

> . . . transfixed straw men with the omnipotent pen, while the enemy has stalked them unawares . . .

The book proposes to present an alternative position to evolutionary doctrine and seems to assume that the word 'creation' is always synonymous with 'special creation'.

Following a brief introduction to Darwinism and the scientific method, the authors state that they believe that the modifications being made to evolutionary theory will eventually lead to its rejection. Like too many books on this topic, the authors display an embarrassing lack of familiarity with biology and paleontology, even though both are professors of Biology at Christian colleges. One incredible example is found in the section dealing with the reasons for similarity between organisms. The authors feel that similarities exist because of a comon creative plan or design and attempt to discredit the concept of homology (although it is not obvious to me why the two are necessarily in opposition). One of the few figures in the book occurs here, with drawings of the skulls of the mammal-like reptile *Bienotherium* and a modern mammal, the beaver. The question is asked "How can an evolutionist be certain that supposedly common charactristics which he takes to be evidence of common ancestry are not in fact examples of convergence?" Although the book is written for the 'intelligent layman', it seems that the authors cannot see any deeper themselves. The normal 'conservative' embryological features of the skull such as bone distribution, sutures, foramina etc., are regarded by Frair and Davis as ". . . certain differences arbitrarily regarded as being of paramount importance", as if the process of comparing the anatomy of organisms is arbitrarily at the whim of any and all "evolutionists". These skulls are said to resemble each other "in astonishing detail" in the teeth (but do they have the same kind of tooth structure?) and ". . . even a small hump in the posterior ventral border of the eye socket". If such a superficial view prevailed in comparative anatomy, it would be an incomprehensible field.

With regard to gaps in the fossil record, the authors admit that where some gaps exist in some views, others see links, for example *Archaeopteryx*. The possibility of filling such gaps is neatly removed by that idea that

> . . . there is no reason why a form like *Archaeopteryx* could not have been created specially. . . .

The authors' treatment of behavior is simplistic and gratuitous, for example:

> . . . certain scientists are making commendable efforts to simplify studies of behavior.

The section dealing with the occurrence of organisms in the fossil record is very dated, with all pre-Cambrian fossils regarded as being insignificant. To state that

> . . . the abrupt change . . . at the Cambrian is a result of God's creative activity

is, in the sense meant by the authors, to me a pathetic view of the creative activity of God. Can anything occur at any time, can anything continue to exist even, without the creative activity and cohering power of the living God? Let us beware of dishonoring Him by confining His activity to those periods of history where as yet we have no adequate explanation on the natural plane.

Although the book is for layman, a number of items are out of place, notably a long and unnecessary footnote on stochastic processes. The authors' attempt to present an alternative position is squeezed into the last few pages and says little. A fuller attempt was surely justified in view of the stated purpose of the book, and could have been accomplished by cutting the 10 page index (vs. 70 pages of text) at least in half.

Although the authors criticise others for not presenting a sound alternative, all they can muster is a weak statement that the

> . . . data can be interpreted satisfactorily within a creationist framework

and promise to attack the problem of the 'kinds' by

". . . certain laboratory analyses". Few books fail so spectacularly in their object.

Reviewed by Geoffrey A. Manley, Associate Professor of Biology, McGill University, Montreal, Canada.

YOUR PLACE IN THE COUNSELING REVOLUTION by Jay E. Adams. Nutley, New Jersey: Presbyterian and Reformed Publishing Company, 1975, 44 pp.

The contents of this book resulted from the Staley lectures given at Cedarville College in January 1975. The four lectures were directed at those considering a ministry of Christian counseling as well as the average church member. Jay E. Adams is associated with Westminster Theological Seminary and is the author of many other books, his most famous being *Competent to Counsel*.

For those familiar with Adams' views this book will provide no surprises. The Bible should be viewed as a textbook for counseling. The fundamental failure in modern counseling is the omission of God and His revealed Word. The proper graduate training for those preparing themselves for a ministry of Christian counseling is a theological seminary. Keith Miller's relational theology is suspect because it comes from experience and not Scripture. Many Christians know the views of Mowrer, Glasser, Harris, Skinner, etc., better than the views of Paul. Psychiatry and psychology have failed to help men with their problems. All counseling based on the theories of men is pagan, and Christians who seek to use such theories fall into the sin of accommodationism. Adams writes,

> Therefore, to baptize counseling systems like Freudian Psychoanalysis, Skinnerian Behaviorism, the Rogerian Human Potential Movement, or the Berne/Harris/Steiner views of Transactional Analysis into the Christian fold unconverted, by adding on God's holy Name and sprinkling in a few assorted scriptural proof texts, ultimately amounts to taking His Name in vain (pp. 15, 16).

Another error Christian counselors fall into is what Adams calls the Eureka view. The advocates of the Eureka view "instead of attempting to bring God in from the outside in order to tack Him on as an adjunct to a godless system, they purport to discover that He was in the picture all the time (p. 20)." Christian counselors who are guilty of accommodationism or the Eureka view include Quentin Hyder, John Drakeford, Gary Collins, and L. I. Granberg,

It seems to this reviewer that Adams' entire view hinges on assumptions which are highly suspect. He assumes that the kind of counseling he is arguing for is both more biblical and effective than either "pagan" secular counseling or Christian "eclectic" counseling. He also gives no evidence for these positions. His basic approach is to argue for support for his view from face validity. His position would be more tenable if there were some empirical validity. All Christians agree that secular counseling systems lack complete congruity with the Bible. However, if a client's symptoms are removed or relieved by applying principles of behavior, then how can Adams claim "pagan" or "eclectic" therapy doesn't work or that it is based on error? "All truth is God's truth." Adams seems to adopt an *ad hominem* stance, viz., if the theory is proposed by a non-Christian it is pagan and therefore ineffective. Psychology books abound with case studies of people who have been helped by various therapeutic techniques. Is it not possible that non-Christian theorists could discover some behavioral principle which would be effective if used by Christian or non-Christian therapists? Adams seems to answer no. Of course, if the only outcome Adams expects from the counseling relationship is conversion for the counselee, then obviously a Christian counselor is essential. On the other hand, if a counselee has a symptom amenable to behavior therapy, there is no evidence that such a case would prosper more by counseling of the type Adams describes.

In sum, what Adams labels as "pagan" or "eclectic" counseling may have some validity from a pragmatic view. If that is true, then an additive approach whereby scriptural tenets are supplemental may be valid. For instance, according to client-centered therapy, the therapist should be candid, confrontational, empathetic, non-possessive and warm. Just because the word Christian is not tagged on to this description does not invalidate the other characteristics.

If Adams believes that the gospel is the cure for all ills, then why are there so many Christians in need of counseling? If it is because they have not appropriated all they have in Christ, then this seems to be an acknowledgement that they need to be shown how. It is this "showing how" that opens the door to the need for counseling principles and techniques, many of which may originate with "pagans."

Reviewed by Richard Lee Ruble, Professor of Psychology, John Brown University, Siloam Springs, Arkansas 72761

MORAL DEVELOPMENT: *A Guide to Piaget and Kohlberg* by Ronald Duska and Mariellen Whelan. Paulist Press, New York: 128 pp., n. p. (paper), 1975

MORAL LEARNING: *Findings, Issues and Questions* by Edmund V. Sullivan. Paulist Press, New York: 123 pp. $3.95, 1975. (paper)

Here are two useful little paper back books that are much more valuable than their modest size and simple format indicate. Together they give a neat summary of current research on the development of moral capacity, which is a field of newly regained academic respectability.,

Psychologists at the beginning of the twentieth century gave serious concern to moral development as a central issue of psychological development. Education was seen as a moral enterprise. John Dewey lamented the separation of intellectual and moral training, for to him moral education was part of character development. Morality was more than indoctrination, but a studied development of a faculty for critical moral deliberation. (*Democracy and Education*, 1916)

But as psychology became enmeshed in logical positivism, interest in such subjective issues as personal morals vanished. *Pari passu* the school system became a center for the acquisition of objectified knowledge. But concern for the amoral nature of child development has been resurrected through the increased attention to character development of children. As a result the

psychology of moral development is a current hot topic. An old pioneer and a youngish researcher are the forefigures of this movement. The pioneer is the Swiss developmental psychologist Jean Piaget, who had published his empirical observations on the process of moral development in 1932 in *The Moral Judgment of the Child*. His work lay virtually unnoticed for thirty years. Then in the early 1960's a young experimental psychologist, Lawrence Kohlberg, developed a series of development stages of moral development, which he proceeded to use in studying not only development, but the level of moral capacity of various adult populations. The results were dismaying—most American adults show only about Stage 3 moral development, whereas the highest level of Stage 6 morality is uncommon in the common populace. What has gone wrong? Why is there a general moral immaturity? I should point out that I am not talking of acting in conventional moral manner, but rather the lack of critical capacity for profound moral inquiry.

At issue is the fact that morality is *not* an inborn trait of mankind, but is an acquired ability, based on specific learning processes. The Duskan-Whelan book does a nice job summarizing the basic observational data of both Piaget and Kohlberg in non-technical language. They also give a brief look at the relationship between moral development theory and Christian morality. The Sullivan book is more challenging. He reports in relatively simple format a series of educational experiments in teaching moral process to students, and to their teachers. The results are telling. The students showed marked improvement in moral capacity when taught effectively. The hooker was that the morally immature teachers produced no moral change in their students, although using the same texts and methods.

My only caveat to these two fine books is that they focus only on the cognitive-intellectual components of moral development. Both Piaget and Kohlberg are cognitive theorists. Thus neither book includes data or even references to the emotional and psychodynamic dimensions of moral growth. [1,2] There are two excellent readers just published that give a more complete picture of moral development. They should be consulted to compensate for the lack in the two books under review.[3,4]

I highly recommend these books to any thinking person. For the Christian educator I would make this package top priority reading. If you want a challenge to your view of moral education—read these books!

Reviewed by E. Mansell Pattison, Department of Psychiatry and Human Behavior, University of California, Irvine.

REFERENCES

[1]Pattison, E.M. Ego Morality. *Psychoanalytic Rev.* 52:137, 1968.

[2]Pattison, E.M. The Development of Moral Values in Children. *Pastoral Psychology* 20:14, 1969.

[3]Bier, W.C. *Conscience. Its Freedom and Limitations.* Fordham University Press, New York, 1971.

[4]Nelson, C.E. *Conscience. Theological and Psychological Perspectives.* Newman Press, New York, 1973.

ECOLOGY AND HUMAN NEED by Thomas Sieger Derr, Philadelphia: Westminster Press, 1975, 174 pp., $3.45.

One would never infer from the title of this volume that the author regarded a Christian approach to ecology as very desirable and that over two-thirds of the book was devoted to developing one. In fact, this effort is the most valuable part of the monograph. The plan is to outline the shape of a Christian ecology and then use that understanding as a tool to tackle the almost overwhelming number and variety of ecological problems. The construction of an ecology based on Christian principles is very good. But, although the first part is done well and is helpful, the applications do not seem to follow very directly from it and solutions given are few though the problem is mentioned many times.

The major part, Derr's building a Christian view of ecology, is somewhat methodical, but thorough. Some of the topics of chapter one are the biological and non-biological aspects of humans, the relations of God to material objects, and the interaction of technology and Christianilty.

Chapter two is devoted to summarizing alternative Christian perspectives, those of "biblical" theology, process theology, and the undefined group that wants to remystify nature. In chapter three he offers criticism of each and gives an extra plug for the type of historicization and desacralization that he favors. (Although Derr is not an evangelical, few of his thoughts will be found by evangelicals to be objectionable for theological reasons.)

Chapter four, about the dominion of man, is very good. Many Christians, especially in discussions about ecology, are perplexed and embarrassed by the biblical emphasis of the dominion of people over the rest of nature. Although the biblical statements about the dominion are very few, many individuals have asserted both that that concept has been central to the thought of the majority of Christians and that it has been greatly abused by nominally Christian groups. While not defending ecological devastation, Derr argues at some length that there is considerable biblical backing for humans to exercise intelligent control of their environment and, in that respect, of their destinies. The message of this chapter ought to be frequently expressed but seldom is.

In chapter five Derr begins to touch on the titular topic of the book, a subject he directly confronts only in the last chapter. Again, many of his insights about obligations to future people are good, have definite scriptural support, and will be novel to most Christians. But the applications and suggestions he makes do not seem to really meet the hard issues. It is relatively unproblematic to decry doing things actually harmful to coming generations or to conserve natural resources which they will need. The most intransigent problems concern obligations to feed the hungry and clothe the naked now. It is quite possible at a time not too far off, that this will be more than can be done. Derr often criticizes emphases on future obligations eclipsing focus on present ones, calling such "brutal", but the precise opposite, letting present obligations swamp the future ones, is at least as thorny. Derr does not talk about that possibility, nor does he bring up causes of events or discuss their relationship to ethics. He should. If the causes of a particular famine are political and economic malfeasance rather than natural catastrophe, does that not make an ethical difference?

The sixth chapter explores the relationship of property and stewardship. As before, his discussion of the theology involved is excellent. The implications for

ecology are quite direct. But when distributive justice and developmental economics are involved, the presentation is much poorer and seems second-hand. The seventh and last chapter finally confronts directly the problem expressed in the title—the possible conjunction of ecology and human need. The problem, mentioned often in the preceding chapters, is that if ecological imperatives entail curtailing economic growth and development, this will surely have an adverse effect on places just starting to develop. At the outset one ought to examine the adequacy of that contention.

Initially Derr says it is with "faultless realism" that it is concluded "that a freeze on growth in the name of environmental solution would be a confirmation of the *status quo*." But later on one realizes that there is a possible resolution of this impasse, that the denial of growth depends on a bad sense of "growth". Growth that means pure increase of material possessions, growth of quantity, might have to be curtailed among rich and poor alike. Quantitative growth may have to stop. But another sort of growth does not, the growth of quality. After all, the reason a Rolls-Royce is better than a Chevy is not that it contains many times as much material. The quality of life, not the amassing of material objects, is what all humans ought to emphasize. Derr has an especially good point here, because not only is this being done to a certain extent, but it is not overwhelmingly difficult to persuade people that in the final analysis this is the way to go.

In contrast to this suggestion, his others tend to be visionary and utopian, such as his expressing the need for international laws governing ecological matters. Despite weaknesses, and all books have them, the volume is definitely worth reading.

Reviewed by Allen J. Harder, Assistant Professor of Philosophy, Iowa State University, Ames, Iowa.

CHRISTIANS AND SOCIOLOGY by David Lyon, InterVarsity Press, Downers Grove, Illinois (1975). 93 pp. Paperback. 90 p.

The author is lecturer in sociology at Bingley College of Education in England. His book is aimed at defining the nature of sociology and its interaction with the Christian position, and "to help anyone who, for the first time, is facing the challenge of sociology." Pinpointing the principal cause of conflict between science and Christianity as the tendency for sociology to relativize all values, Lyon argues that an understanding of sociology must take into account the fact that it "is a direct product of 19th century humanism and scepticism," with major inputs from positivism and empiricism. While rejecting absolutes, the sociologist absolutizes society; while rejecting authority, he proclaims its message authoritatively.

In spite of such historical and methodological drawbacks, however, Lyon does not argue against sociology *per se*, but in favor of setting it into a Christian context where it can serve the Christian's calling. For example,

> Social, or structural, sin is a phenomenon that has been sadly neglected by most Christians in recent years, and sociology does expose the crying need for a radical biblical understanding here.
>
> Although the sociological definition of religion contains implications as to the truth or falsity of religion, it may in other respects be an accurate assessment of the situation. We should never dismiss any sociological 'finding' without thought. What matters is that we be honest and consistent as we use our assumptions to deal with the same problems.

For the author, a "Christian sociology" is one based on distinctively biblical presuppositions, which is used to criticize or modify sociologies based on other presuppositions.

> To talk merely of Christians *in* sociology . . . denies . . . that Christ is Lord of our sociological imagination; and denies, on the other, that our Christian presuppositions have any relevance to our lives as sociologists.

PHILOSOPHY: *A Christian Perspective* by Arthur F. Holmes, InterVarsity Press, Downers Grove, Illinois 60515. Rev. ed. (1975). Paperback. 54 pp.

This is a revised edition of *Christianity and Philosophy* (1963) by the Chairman of the Department of Philosophy at Wheaton College, Illinois. It is sub-titled "An Introductory Essay" and intends to be just that, giving some general principles in a few pages. In a chapter on "What Is Philosophy?" the author sees two general functions of philosophy: an intellectual conscience for society, and the development of a guiding world view. After a chapter on "What Is Christianity?" the author argues in "Christianity and Philosophy" against extremes of making philosophy subservient to theology, or theology subservient to philosophy, and for an attempt "to relate faith to reason and Christianity to philosophy without compromising the values of either." He sees the Christian philosopher as serving theology, apologetics and his culture. In a final chapter on "Christians in Philosophy" he discusses several different kinds of philosophical models that Christians have used in the past and present. The most crucial areas of current interest are proposed to be the nature of man, ethics and social philosophy.

THE PSYCHOLOGY OF ATHEISM by R. C. Sproul, Bethany Fellowship, Inc., Minneapolis, Minnesota (1974). Paperback. 166 pp. $2.95.

In this book the Staff Theologian for Ligonier Valley Study Center, and Visiting Professor of Apologetics at Gordon-Conwell Seminary, tackles the charge that Christian convictions "are motivated not by reasonable evidence but by psychological needs." He counters by arguing that

> Though man may desire and create for himself a deity who meets his needs and provides him with innumerable benefits, he will not desire a God who is holy, omniscient, and sovereign.

The book starts with a definition of terms like "theist" and "atheist" in historical perspective. I especially appreciated the definition of "Practical Atheism: . . . the phenomenon of people who profess belief in some kind of deity, but who, for all practical purposes, live as if there were no god." The author rejects the option of seeing the question as utimately a subjective rather than an objective question.

> In the final analysis there either is a God or Gods or there are none. There either is something or someone ultimate apart from me or there is not.

Dr. Sproul examines the psychological analyses of religion put forward by Freud, Feuerbach, Marx and Nietzsche. He concludes that these writers already presuppose the nonexistence of God. They do not ask, "Is there a God?" Rather they ask, "Since there is no God, why is there religion?"

> The issue of theism/atheism is not over the question, "Why does man believe in God?" The ultimate issue is not why do men fear the contingencies of their existence, but rather why are there contingent beings in a contingent universe worrying about the problems of contingency? . . . If the atheist can live intellectually with massive causeless effect such as the material universe, why is he constrained to provide a cause for such a small thing as religion?

Dr. Sproul takes the atheist's argument that God is just the creation of human desire and turns it inside out to argue that man's desire is not that the God of the Bible exists, but that He doesn't. Using extensive biblical sources, the author argues that "according to Paul, religion is not the fruit of a zealous pursuit of God, but the result of a passionate flight from God."

With convincing insight the author discusses the psychology of Romans 1 and then passes on to consider "the trauma of holiness."

> The unholy personal may *not threaten* or be *somewhat* threatening. The non-holy impersonal threatens *more*. The Holy personal threatens *most*.

He follows with a consideration of "nakedness," its significance in human relationships and for relationships between man and God. Finally he considers the issue of "autonomy."

> If ever there is a genuine paradox to be found in Holy Writ, it is at the point of freedom and bondage. The paradox is this: When one seeks to rebel from God, he gains only bondage. When he becomes a slave to God, he becomes free. Liberty is found in obedience.

This is a vital and provocative book. The author provides the reader with significant insights into his own comitment to God as well as with the means of turning aside attacks against the existence of God.

THE UNIVERSE NEXT DOOR by James W. Sire, InterVarsity Press, Downers Grove, Illinois (1976) Paperback. 236 pp. $4.25.

Dr. Sire, editor of InterVarsity Press and Associate Professor of English at Trinity College (Deerfield), performs a valuable service by gathering together the major presuppositions of some eight different worldviews that have affected and do affect people's perception of themselves and the world. The worldviews treated include: Christian theism, deism, naturalism, nihilism, atheistic existentialism, Christian existentialism, pantheistic monism, and "the new consciousness." The book traces the disintegration from Christian theism down to nihilism,and then the abortive attempts to recover what had been lost.

On arguing for the inevitable production of nihilism as the result of a consistent acceptance of naturalism, the author would do well to define terms a little more carefully. When he speaks of chance as "absolutely irrational . . . causeless, purposeless, directionless," it would be good to make unquestionably clear that he is speaking of Chance as a total worldview, and not of chance as a mode of scientific description. Events and processes that are described scientifically as "chance occurrences" can in the larger picture still be elements in design and purpose, provided that God is active in all reality. To condemn a scientific description on the grounds that it was a "chance" description and hence violated basic theological principles, would be an unfortunate confusion of categories. Again when he says, "Naturalism holds that perception and knowledge are either identical with or a byproduct of the brain; they arise from the functioning of matter," it would be interesting to know what the alternatives are. As far as anything we know about living human beings is concerned, perception and knowledge *do* arise from the functioning of matter—that unique functioning which is itself responsible for the fact that we are human beings. In each case I feel fairly certain that Dr. Sire would make the appropriate distinction if questioned, but his readers may not do so without some specific aid.

Another place calling for caution is in the section on existentialism where Dr. Sire speaks of paradoxes as "sets of seemingly contradictory statements." Here it is important to be clear on the difference between a paradox and a logical contradiction. A contradictory statement, one that affirms that both A and not-A are true, cannot be tolerated, but theological paradoxes are not of this type. The intrinsic biblical teaching of the sovereignty of God and the responsibility of man is a paradox, but hardly a contradiction.

There are, of course, certain traditional worldviews that are missing as separately described positions. Most striking among these is humanism, which does not strictly fit into any of the categories treated. It would also have been helpful if some inclusion of Islam had been possible, in view of the widespread influence of this derivative from the Judaeo-Christian position.

Lest these comments be thought primarily negative, let me indicate the very significant contribution that Dr. Sire makes in setting forth the still-forming dimensions of that worldview he calls "the new consciousness." Here is a dominant worldview among students, intellectuals and even formerly conventional scientists that is taking shape all around us today. Dr. Sire performs a valuable service indeed in analyzing the types and bases of this modern worldview. It is only a slight exaggeration to predict that one will not be able to understand major trends in modern thought without understanding the worldview that Dr. Sire dissects for us here. He properly sees it as "a Western version of Eastern mysticism in which the metaphysical emphasis of the East is replaced by an emphasis on epistemology." It has roots in modern theories of physics as well as in the occult. Dr. Sire clarifies the situation by discussing in some detail the writings of Carlos Castaneda, one of the most colorful and articulate exponents of this view.

This is a valuable book for everyone who attempts to integrate the beliefs and actions of human beings. Everyone has a worldview, whether he knows it or not; Christians should be aware of the framework in which those to whom they witness live.

Reviewed by Richard H. Bube, Department of Materials Science and Engineering, Stanford University, Stanford, California.

Are You Ready?

I note that by extrapolating the rate of growth depicted on the cover of the March *Journal ASA,* we find that in the year 2000 the entire projected population of the earth will be members of ASA. This undoubtedly indicates something. Are you ready?

R. T. Carruthers
Konope Point
Warrenton, Oregon

Enjoyed Article on UFO's

I particularly enjoyed the March 1976 issue of the *Journal,* especially Fowler's article on UFOs. Having followed his work in the past I expected his usually thorough treatment of the subject, but it was his challenge at the end of the article that was most exciting.

Scott R. Scribner
Fuller Theological Seminary
Graduate School of Psychology
Pasadena, California

Did the Doctor Really Try?

In the March 1976 issue of the *Journal ASA* Robert McGrew reviewed the book: *Healing: A Doctor in Search of a Miracle* by Bill Nelson. A quote from the review:

"Dr. Nolen had no doubt that Kathryn Kuhlman helped many people. However, he could not document *one* cure of a person with a serious disease such as cancer, . . . "

Did the doctor really try?

May I suggest an investigation of the case of Captain John LeVrier, Houston Police Department, as related in the book: *Captain LeVrier Believes in Miracles.* Is the Captain a fraud? If so, we have an obligation to expose him. If this story is true, then the *Journal* has a moral obligation to print a "Correction Please".

Rudolph P. Blaum
Captain, N.Y.C.P.D. (ret.)
83-33 75th Avenue
Glendale, N.Y. 11227

Paul's Interpretation of Genesis

F.F. Bruce was once asked if a church should exclude someone who, having accepted Paul's doctrine of justification by faith as apostolic, thus excluded the book of James from the canon for its teaching on justification by works *(Answers to Questions,* p. 220). Bruce's reply notes that even such a one as Martin Luther depreciated the epistle of James for that very reason, and it was doubtful that many would wish to excommunicate him (i.e., among Protestants!). But as Bruce replied, the teachings of Paul and James on the subject are not incompatible. I bring this up in connection with Ms. Nancy Barcus' review of *All We're Meant to Be: A Biblical Approach to Women's Liberation* by Letha Scanzoni and Nancy Hardesty (*JASA,* March 1976) who regard Paul's interpretation of Genesis concerning women to be in error, a left-over rabbinical argument short of the Biblical ideal of Gal. 3:28. Certainly many Christians have come to this conclusion—Paul Jewett, *Man as Male and Female,* to name another—and with them I hope to remain amicable. However, I consider such a view, as I also consider Luther's view on James, to be definitely sub-Christian. It does not seem to take seriously the doctrine of inspiration, and it would seem to deny the first item in this *Journal's* statement of faith.

But statements of faith must not be held against Reason. If the conclusion that Paul was definitely in error in some of his teachings is the only intellectually acceptable conclusion based on careful study, then it must be accepted. But I suggest that there are other solutions. Since Ms. Betty Bube went to the trouble to fill nearly two pages of this *Journal* with Ms. Hardesty's and Ms. Scanzoni's interpretative arguments, it seems also appropriate to list some which seem to me more in congruence with the *Journal's* statement of faith.

1. Gal. 3:28. This is indeed a key verse for understanding male/female relationships.

2. I Timothy 2:11-15. Why then does Paul not allow women to teach? It should be noted that he did allow them to pray and prophesy (I Cor. 11:5). One answer is that in the creation stories, the order of Creation (v. 13) does in fact indicate a secondary status for women, as also does the curse from the Fall (v. 14—Gen. 3:16). But these are transcended in Christ through whom equal status will ultimately be procured. As for the present, however, a tension existed between the old order and the new creation in Christ. Paul had to make allowances for an interim period from the Creation/Fall ordinances to the new regime of Grace, in which it was not practicable to give immediate and complete effect to his insights on social questions like slavery and the place of women.

3. I Cor. 11:2-16. The tension between old and new is also here. In wearing a veil, the woman recognized the hierarchy order shown by Creation (v. 3-9), being consistent with nature's endowment to her of faster growing hair (v. 14-15), and consistent with public seemliness and general Church practice (v. 13, 16). But above all, the veil was a symbol of *AUTHORITY* (v. 10, see NIV, NEB, NASB or RV; many other modern translations obscure this verse). It is not a sign of submission to her husband, nor of social dignity; it is a sign of her authority. "In the synagogue service, a woman could play no significant part: her presence would not even suffice to make up the required quorum of ten. . . . In Christ she received equality of status with man: she might pray or prophesy at the meetings of the church, and her veil was a sign of this new authority." (F.F. Bruce, *I & II Corinthians,* p. 106).

I submit this as a possible scheme of interpretation which does not require attributing to Paul erroneous teaching. I hope this can be of help to someone.

Joe M. Sprinkle
Student, The University of Oklahoma
Norman, Oklahoma 73069

Poverty in Understanding Roman Catholics

I was both surprised and saddened to see once again in the pages of the *Journal of the American Scientific Affiliation* (March 1976) a rather unbecoming reference to the position (or non-position) of Roman Catholics in the Christian community. Mr. Mixter in his article "Scriptures and Science with a Key to Health" refers to the fact that "Healing enthusiasts claiming marvelous healings are matched by Mormons, Spiritualists, Roman Catholics, Mesmerizers and others. . ."—rather dubious company indeed! Now I do not know whether such a placement of Roman Catholicism reflects the position of Mr. Mixter or Mr. Porcella, nor am I particularly concerned about their personal opinion of Roman Catholicism; I call this statement to your attention only because it is representative of statements which appear frequently in the *JASA.* As a Roman Catholic I find such statements offensive and very unfair; as a Christian I find them very much against the spirit of understanding and love which is the supposed hallmark of our community.

I cannot count the number of times I find ASA members lamenting the pitiful understanding of Christianity possessed by their non-Christian colleagues in the sciences. Yet their own statements betray a similar poverty in their understanding of Roman Catholicism and other non-Evangelical perspectives on the Christian faith. To hear fellow Christians speak of the Evangelical perspective as the only Biblical perspective in the Christian

community is really quite sad. Such parochial and sometimes bigoted statements are certainly unbecoming to a group of scientists (Christian or otherwise) and the journal which officially represents them.

I can only encourage the ASA and its members to consider carefully the statements made about non-Evangelical Christian communities in the future.

We are exhorted in the epistle of James to restrain our toungues; I have as yet found very few statements in the *JASA* concerning Roman Catholicism to reflect either the restraint of a scholarly understanding of it or the restraint of brotherly love toward it. If the ASA is determined to take on the task of reconciling the scientific and religious communities, such restraint must be demonstrated. Until it is, I cannot renew my membership in your community. In Christ's peace,

Douglas Hamill
University of Washington
Seattle, Washington

Editor's Note: We deeply regret any statement in the *Journal* that indicates a lack of understanding and brotherly love. In the future we shall make every effort to increase our sensitivity.

Journal *Has* Reported "Hard" Science

The attention of reader Frank Vosler, who charges that the *Journal* is guilty of snide denigrations, etc., (Communications, 27, 4, D, 192, 1975) should be directed to some "hard" science reports in previous *Journals* which answer the attacks of Special creationists on evolution.

Physical scientists, who are not evolutionists, have written that the use of the law of increasing disorder as an argument against evolution is invalid.[1,2]

Mathematical improbability of evolution based soley on chance mutation rates is an inadequate and oversimplified model for the biological theory. Environmental variations, natural selection, and adaptation are complexities of the evolutionary process not dealt with.[3] Chemical evolution was also made more probable by natural selection, environmental variations, concentrating mechanisms, and mineral catalysts, than would be predicted by purely random collisions of energy-activated molecules. All unique events, including the transition from non-living to living matter, share an extremely small probability, and an objection to the occurrence of such events is invalid.[4]

Reliability of radiocarbon dating (±700 yrs. at most) and effects of variation in earth's magnetic field were reviewed by the method's originator.[5] Non-radiometric methods were also reviewed recently.[6]

So called "geological deceptive conformities" have been dealt with.[7]

Biochemical mechanisms for evolution have been described,[8] but in fairness to reader Vosler it must be admitted that references 4, 6, and 8 appeared in the same issue with his communication, so he couldn't have had the benefit of reading them before he wrote his letter. However, these articles are but a sampling of the "hard" science that has appeared in past issues of the *Journal*.

Jerry Albert
5202 Cobb Place
San Diego, CA 92117

[1] J. A. Cramer, 1971, "General Evolution and the Second Law of Thermodynamics," *Journal ASA* 23, 1, M, 20.

[2] R. W. Maatman, 1970, *The Bible, Natural Science, and Evolution,* Reformed Fellowship, Inc., Grand Rapids, Mich.; reviewed in *Journal ASA* 23, 4, D, 153 (1971).

[3] E. Mayr, "Evolutionary Challenges to the Mathematical Interpretation of Evolution," In P. S. Moorhead and M. M Kaplan, Eds., 1967, *Mathematical Challenges to the Neo-Darwinian Interpretation of Evolution,* The Wistar Institute Press, Philadelphia, PA; reviewed in *Journal ASA* 24, 2, J, 70 (1972).

[4] A. Van Der Ziel, 1975, "Random Processes and Evolution," *Journal ASA* 27, 4, D, 160.

[5] W. Libby, 1972, "Dating by Radiocarbon," *Accounts of Chemical Research* 5, 289; reviewed in *Journal ASA* 25, 2, J, 70 (1973).

[6] D. W. Wonderly, 1975, "Non-Radiometric Data Relevant to the Question of Age," *Journal ASA* 24, 4, D, 145.

[7] J. R. van de Fliert, 1969, "Fundamentalism and the Fundamentals of Geology," *Journal ASA* 21, 3, S, 69.

[8] R. L. Herrmann, 1975, "Implications of Molecular Biology for Creation and Evolution," *Journal ASA* 24, 4, D, 156.

Secret In A Cell

During the 1960's research was for me a way of life, a life that involved fighting my way out of a test tube. I worked as a tissue culturist at the Papanicolaou Research Center in Miami, Florida. My job included placing tiny bits of mouse tumor tissue inside specially prepared culture tubes. Then with proper media and incubation, cells would grow. Nevertheless, some would also die. I had to discover why they were dying.

The chief investigator suggested the obvious. "There's something wrong with your technique." So I ran a simple test. To a drop of blood I added a drop of the media in which the cells had been growing to see if the solution was isotonic. It was. It had the exact amount of surface tension needed to keep the cells viable.

Then I tried changing the ingredients of the media. Using various kinds and ratios of sera, I found that the results were the same. I searched through volumes of literature on cell cultures, cell physiology, techniques and technology and found nothing that helped. Other researchers had the same experience. One Doctor told me, "Yes, we have that problem; so we just use the ones that are good and discard the others." Although he seemed to ignore the problem, I could not. I was having a terminal case of interference. Somewhere there had to be an answer to why these cancer cells apparently were self-destructing.

Finally I reasoned: if by doing the opposite, the effect was the same, then technique could be ruled out. So, without sacrificing sterility, I broke all other rules of good tissue culturing. Glass surfaces on which cells are grown must be virgin clean. I smudged the glass. Tissue size should be one millimeter. I cut the fragments too large and too small. Media should be one milliliter. I tried both double the amount and half the amount. With all this, results were unchanged.

Conclusion: with either proper or improper treatment some cultures grew and lived and others grew and died. Therefore, if cell growth were not entirely dependent on external environment, there had to be an internal cause. If certain cells were programmed in an exceptional way, then naturally, they would develop differently.

Like a recorded message, the words kept repeating in my mind, *by their fruits ye shall know them.* Using Scripture in a laboratory is an unpopular way to explain the known, unknown or any of the myriad phenomena that men struggle with. Even if I could diagnose the difference, I still would need to demonstrate the significance of all my scientific descriptions. So I stayed at the microscope.

In trying to understand the nature of a malignancy, I likened it to the nature of evil which comes in never ending forms of deceit. As I noted an artifact on a prepared slide, I realized the deception. These cells *were* different. They were as *trees whose fruit withereth, without fruit.* I wondered: there must be some factor within the nature of a tumor that was able to destroy itself. Since this destructive power easily killed the host, why not itself? And if so, then perhaps that substance when applied to other tumor tissue would destroy tumor growth.

How simple. It seemed as though I knew the answer before the experiment was finished. From explants of squamous cell carcinoma of mice, I chose cultures with established growth, removed the original media and replaced it with media from cultures in which the cells had died.

With the excitement of an expectant parent, I drove to the lab the next morning. There it was! After only twenty-four hours, signs of necrosis were beginning to show. A few days later cell death was complete.

Then came the final test. To be of value, the media that destroys cancer cells must not destroy normal cells. Therefore, I repeated the expermiment using mouse embryo heart tissue. Again the results were successful. Normal cells remained unharmed.

Yes, *there is a God in heaven that revealeth secrets.*

Ruth E. Farr
1800 W. Bethune No. 208
Detroit, Michigan 48206

The Fossil Record and Creation

The assertion that the fossil record supports the Genesis account of creation is frequently made by those who follow the world view advocated by Henry Morris. Among such statements are the following:

> "The creation model . . . predicts that there would be systematic gaps in the fossil record and that these would be essentially the same gaps as in the present world."[1]

> "Furthermore, a COROLLARY PREDICTION [of the Genesis account of creation] would be that researchers would expect to find gaps in the fossil record between distinct kinds of animals and plants. Full confirmation for these predictions from the Genesis account of creation can be obtained from. . . paleontology. . ."[2]

> "The historical (fossil) record, rather than supporting the theory of evolution, as evolutionists claim, is actually incompatible with the theory. The rocks give proof that "In the beginning, God created . . .".[3]

For the reasons given below it is my judgement that the fossil record does not support the Morris version of creation and that statements such as those cited are incorrect and misleading, particularly to laymen, and tend to inspire confidence in a particular interpretation when it is not merited.

What is "the fossil record"? Not simply a pile of bones and shells which, when assembled, reveals gaps in kinds. Rather, the fossil record consists of *both* the remains of living things *and* the strata, with all of their interelationships and complexities, that contain the fossils. The Genesis account of creation gives no reason whatever to even suspect that there is any such thing as a "fossil record".[4] A straightforward reading of Genesis 1 and 2 would seem to indicate that if there were any fossils at all they would exist only in the surficial layers of the earth. As this is clearly contradicted by the evidence, creationists of the Morris view are forced to adopt a much later event such as the flood of Noah to account for these strata. But, if the strata are flood deposits, then the fossil record (strata and fossils) is *not* a record of the original creation. The fossil record does *not* provide, according to the flood geology theory, any information about the creation period itself.

A second point relates directly to the fossil remains. If the fossils are the record of forms living at the time of the flood they are not then necessarily the originally created forms. Many "creationists" have difficulty explaining the existence of great defensive or offensive structures such as horns, teeth, indicators of a carniverous form of life, etc. on animals created in a state of perfection. The usual explanation is the curse, which resulted in structural changes in the animals, and the loss of limbs of the serpent of Genesis is frequently cited as an example of the effect.[5] If true, however, this means that the animals found in the fossil record are *not* the originally created forms but are cursed forms, and if the curse was such so as to alter the entire structure and bodily functions of animal groups, even to the extent of eliminating legs or adding great horns or teeth, it seems clear that any attempt to infer the nature or kinds of the originally created forms must be pure speculation. Therefore, the attempt to relate the Genesis account of creation to the strata and fossils found in the crust of the earth seems invalid, since flood geology theories clearly indicate that the fossil record does not date to the creation period but is separated from it by (we are told) two profound events, the Edenic curse and the Noahican flood.

The evolutionist may indeed have difficulties with the gaps in the fossil record as he attempts to understand the origin and development of living things through the ages. The flood geology adherent is, however, in a much more difficult position. According to his own theory he doesn't even have a record of origins to interpret!

David J. Krause
Science Division
Henry Ford Community College
Dearborn, Michigan 48128

[1] Henry M. Morris *Scientific Creationism,* p-78.

[2] John N. Moore *Should Evolution Be Taught?,* p-25.

[3] Duane T. Gish *Evolutionary Theory and the Fossil Record,* p-6.

[4] Morris, of course, rejects any gap at Genesis 1:1,2.

[5] John C. Whitcomb and Henry M. Morris *The Genesis Flood,* Appendix I.

The Gift of Life

The Genesis story of the creation of man is a revelation of great truth to be understood on a spiritual plane. Those students of the Bible who embrace this narrative as a scientific account, as well as their counterparts who dismiss it because it is incredible to them in physical terms, are likely to miss the wondrous message of the gift of life which it proclaims.

In the first chapter of Genesis, it is written that God created the heavens and the earth in six days and that he rested on the seventh. Since "yom," the Semitic word for day, is also correctly translated as an indefinite period or "era" literalists should not feel obliged to believe that God performed this creation in several twenty-four hour periods. Besides, such an interpretation is demeaning of God, for God is spirit and cannot be confined in time or space. ". . .one day is with the Lord as a thousand years, and a thousand years as one day" (II Peter 3:8).

It should not be inferred from the second chapter of Genesis that God created Adam and Eve in physically miraculous terms. Rather, Adam and Eve are represented as the first couple created as man. Adam is distinct from the human beings mentioned in the first chapter in that he was given the breath of life which made him a living soul (Genesis 2:7). As for Eve, the account of her creation is a text of great poetic expression. In no way is it the story of the physical birth of an infant. Eve would be called "Woman," because she was taken out of "Man" (Genesis 2:23). The name "Adam" means "man." God created man in his image. "In the likeness of God made he him" (Genesis 5:1). Since God is a spirit, his image is not a physical phenomenon but a spiritual quality. Apparent throughout the scriptures are the two kinds of birth: physical and spiritual. Without a spiritual birth, man lives only in a bodily sense, as a selfish being born of the dust of the earth. He is dead in the sight of God until he, like Adam, is quickened by God. When he responds to God, believing in him, he receives a new inheritance, a sonship. ". . . he that heareth my word, and believeth on him that sent me, hath everlasting life, and shall not come into condemnation; but is passed from death into life . . . The hour is coming and now is, when the dead shall hear the voice of the Son of God: and they that hear shall live" (John 5:24, 25).

Adam and Eve were created into the family of God to commune with God. Although they sinned, they were still God's children. "And Adam knew Eve his wife; and she conceived, and bare Cain and said I have gotten a man from the Lord" (Genesis 4:1). After the fall, Adam and Eve and their progeny remained conscious of God. Cain and Abel brought offerings to God, though their communication was not always pleasing to God; and although the idyllic relationship was severed in the Garden of Eden, God did not disinherit Adam and Eve. The human family is not unlike God's family. Godly parents wish and do the best for their children, continuing to do so even when their children do not turn out as they would wish. When children commit serious and heinous crimes, they remain their parents' offspring. They still bear their father's name, and their parents love them and do their best to see them restored.

When Cain was punished, he said that henceforth he would become "a fugitive and a vagabond. . in the earth . . (that) everyone that findeth me shall slay me" (Genesis 4:12, 14). It would be absurd to assume that the word "everyone" used here is intended to mean Cain's brothers or nephews. "For God," said she, "hath appointed me another seed instead of Abel, whom Cain slew" (Genesis 4:25). Eve would not have made such a statement had she had other children born to her before Cain killed Abel. "Cain went out from the presence of the Lord, and dwelt in the land of Nod, on the east of Eden" (Genesis 4:16). There, Cain was married, and his wife, who undoubtedly was a human being living in the land of Nod, bore him a son, who was named Enoch. Rather than building a home for this small family, it is written that Cain built for his son a city which he named after his son (Genesis 4:17). Since a city is built for a large group of people, it follows that Cain became the ruler and leader of the people of the land of Nod. From these verses it is clear that before Adam there were men who could and would kill Cain. These were men who, in scriptural terminology, are known as being dead.

That Adam and Eve and their descendants did not totally disavow God is attested in the following passages: "And Enoch walked with God after he begat Methuselah three hundred years, and begat sons and daughters. . . And Enoch walked with God: and he was not: for God took him" (Genesis 5:22,24). Lamech, the son of Methuselah and the father of Noah, knew God. "And (Lamech) called his name Noah, saying, This same shall comfort us concerning our work and toil of our hands" (Genesis 5:29). Noah, the great grandson of Adam, knew God. "But Noah found grace in the eyes of the Lord" (Genesis 6:8). The descendants of Adam and Eve were the sons of God who married the daughters of men (Genesis 6:2). Thus, this gift of God conferred upon our

forefathers was not lost. Even when all who did not repent of their sins were destroyed in the great flood, Noah and his family were spared (Genesis 7:7 and I Peter 3:20).

The scriptures speak specifically of two Adams: First Adam, the Adam of the creation narrative, and Last Adam, Jesus, the Christ, God incarnate. Both Adam and Jesus communed with God, and both were tempted by the devil. Adam fell and there is no written indication that he repented of his sin, whereas Jesus overcame the tempter, "glorified God on the earth and finished the work for which He was sent" (John 17:4). The creation of Adam and Eve and incarnation of Jesus are distinctive from the creation of man, for these three were conceived of the Holy Spirit, albeit differently. Herein lies the message of the old and the new creation.

Dicran A. Berberian, M.D.
389 Loudonville Road
Loudonville, N.Y. 12211

Objections to van der Ziel

I must object strenuously to an article (Random Processes in Evolution, Dec. 1975, Vol. 27, No. 4) in the *JASA* that is representative of many in your 'scientific' publication.

Dr. van der Ziel should have followed through his statement ". . . what we have learned about random processes in physics and engineering should be applicable to biology" to the logical conclusion that evolution (of non-living matter to living organisms) simply contradicts all known laws of nature. Unless he is privy to some laws that transcend the known laws of thermodynamics, spontaneous generation, etc., then he is hard put to find *hard facts* to support his unreasonable conclusions, as the last section of his paper proves.

In the section entitled "The origins of life, of cells, and of muticellular forms" he asks, "How did life . . . originate?" He answers, "We don't know . . . but there are some hard facts."

And these are his *hard facts:* (emphasis added)

(a) "There is sound evidence that . . . electrical discharges . . . *would* have produced living matter. These *should* have combined to . . . protein structures. *Could* it have resulted in living matter? *Apparently* it did *somehow*."

(b) ". . . Schroedinger proposed that . . . left-handed structures of amino acid . . . *must* have come about . . . that all living structures *must* have descended from that first one.

(c) "*If* the primitive forms of life were much simpler . . . then a large accumulation *somehow must* have taken place." etc., etc., ad nauseum.

Where are the references to the research that has been done according to the scientific method to support such 'facts'? It is simple dishonesty to present such speculation as 'hard facts'. I am no longer shocked to see this kind of jargon in secular 'scientific' literature which is daily fare in our schools and colleges, but it is unforgiveable in a Christian publication which purports to be Scientific.

I fully appreciate your many other articles on psychology, theology and other social issues, (which are not scientific in the strictest sense), but if you must publish similar articles as the one mentioned above, then please replace the word 'scientific' in your name to something more appropriate.

Berj M. Manoushagian
47 Erie St.
Woburn, Mass. 01801

Reply by van der Ziel

I am sorry that Mr. Manoushagian seems to have misunderstood my intentions. Perhaps I was not careful enough in keeping fact from speculation. Those who have read my book *The Natural Sciences and the Christian Message* know that I take a very firm stand against mixing up fact and speculation. If I slipped in that respect in my latest ASA paper, I am sorry.

First of all a general remark. What I say in section 5, a-e, does not exclude creation, but includes it, even where I do not specifically say so. I want to leave the distinction between "creative guidance" and "direct creative intervention" open. A strictly scientific explanation falls in my notation in the "creative guidance" category whereas a creationist explanation falls in the "direct creative intervention" category.

Since Mr. Manoushagian objects mostly to parts a-e of section 5, I discuss these in some detail.

(a) His quotation does not make sense. The text says that the electrical discharges "would" have produced all the important *amino acids*. This refers to Miller's experiments published and discussed several years ago. I say "would", for this is in my opinion a hard fact. These "should" have combined to more complex molecules and "could" have formed living matter. Note the difference.

Then I go on to discuss the definition of life and mention that viruses are non-living. I make the statement that the hypothetical first living structures "must" have been much simpler than the present day cells. That is perhaps too strong; the word "could" would be better. I use the stronger word "must" in order to build up an argument against Neo-Darwinism in (e).

When I say "Apparently it did somehow . . . ." this includes "creation" in either of the two above forms.

(b) I point out the fact that all living proteins have the same lefthanded structure. I then discuss Schroedinger's interpretation of this fact, contained in his little book: *What is Life?* This interpretation leads to the concept of "unique event". So far I quoted Schroedinger. Then I make a comment on this. I point out that in my opinion all unique events have an extremely small probability, so that probability arguments are no valid objection in such a case. This unique event can be interpreted differently; it includes "creation" in either of the above forms.

(c) Here I follow up on the hypothesis that primitive life forms were much simpler than present ones. If that is granted, then a large accumulation of genetic material must "somehow" have taken place. I injected remark (c) in order to build a case against neo-Darwinist hypothesis in (e). Again, the word "somehow" allows room for creation in either form.

(d) Mutations, genetic drift and selection are facts. How far they can bring us we don't know and I say so.

(e) Here I first present my case against the neo-Darwinist hypothesis. I then go on to discuss Portmann's critical evaluation of evolution. I gave a review of Portmann's work in the *Journal ASA* a long time ago. See also my book: *The Natural Sciences and the Christian Message* for details and references.

Now I come to two important paragraphs: "When one looks at . . . . ." And "those who at this point . . . .". Here I point out that the structure of the genetic code is the weakest link in the theory of evolution, and I openly admit that those who invoke a Creator here have a very strong position. I add two words of caution, a scientific and a theological one. They are not added in order to take away what I had said but caution against over-enthusiasm.

In my opinion the bottleneck is not the transition from protein molecules to simple living entities, but the accumulation of the genetic code. At that point I see good grounds for invoking "direct creative intervention" rather than "creative guidance". I could also have invoked this at the transition from non-living matter to living structures, but in my opinion that claim could be less strong than in the former case.

The fact that non-living matter is not *now* transformed into living structures should not lead to the logical conclusion that such a transformation has *never* taken place. Apparently it did, either by creative guidance or by direct creative intervention.

A few remarks must be made about the second law of thermodynamics. It applies only to closed systems and the systems discussed here take in energy, so they are not closed. Moreover, mutations occur in viruses, which are non-living, as the changes in flu strains clearly indicate. Such mutations are not *forbidden* by the second law of thermodynamics; on the contrary, a consistent application of that law *requires* them, as I can show mathematically. But I don't know how far that can go and I said so.

As I see it, the creationists and I differ only in the "how" of creation. I believe that God is my Creator as they do, but I have preference for "creative guidance" over "direct creative intervention", and am only willing to invoke the latter where it seems to be required.

A. van der Ziel
Department of Electrical Engineering
University of Minnesota
Minneapolis, Minnesota 55455

Founded in 1941 out of a concern for the relationship between science and Christian faith, the **American Scientific Affiliation** is an association of men and women who have made a personal commitment of themselves and their lives to Jesus Christ as Lord and Savior, and who have made a personal commitment of themselves and their lives to a scientific description of the world. The purpose of the Affiliation is to explore any and every area relating Christian faith and science. The *Journal ASA* is one of the means by which the results of such exploration are made known for the benefit and criticism of the Christian community and of the scientific community.

Members of the **American Scientific Affiliation** endorse the following statement of faith: (1) *The Holy Scriptures are the inspired Word of God, the only unerring guide of faith and conduct.* (2) *Jesus Christ is the Son of God and through His Atonement is the one and only Mediator between God and man.* (3) *God is the Creator of the physical universe. Certain laws are discernible in the manner in which God upholds the universe. The scientific approach is capable of giving reliable information about the natural world.*

Associate Membership is open to anyone with an active interest in the purpose of the ASA. *Members* hold a degree from a university or college in one of the natural or social sciences, and are currently engaged in scientific work. *Fellows* have a doctoral degree in one of the natural or social sciences, are currently engaged in scientific work, and are elected by the membership. *Dues*: Associate $12.00, Member $17.00, and Fellow $24.00 per year. A member in any of these three categories can take the *special student rate* of $5.00 per year as long as he is a full time student.

PUBLICATIONS include the *ASA News* (sent to all members four to six times each year); four symposia: *Modern Science and Christian Faith,* F. Alton Everest, Editor, Van Kampen, Wheaton, Illinois (1950) (out of print), *Evolution and Christian Thought Today,* Russell L. Mixter, Editor, Eerdmans, Grand Rapids, Michigan (1960), *Our Society in Turmoil,* G. Collins, Editor, Creation House, Carol Stream, Illinois (1970), and *People, Power and Protein, Journal ASA Supplement* 1 (1976). Individual authors are also encouraged to publish independently.

LOCAL SECTIONS of the American Scientific Affiliation have been organized to hold meetings and provide an interchange of ideas at the regional level. Membership application forms, ASA publications and other information may be obtained by writing to: AMERICAN SCIENTIFIC AFFILIATION, Suite 450, 5 Douglas Ave., Elgin, Illinois 60120.

CENTRAL CALIFORNIA

CHICAGO

GULF-SOUTHWEST

INDIANA

NEW ENGLAND

NEW YORK CITY AREA

NORTH CENTRAL (Minnesota)

ONTARIO

OREGON

RESEARCH TRIANGLE (North Carolina)

SAN DIEGO

SAN FRANCISCO BAY

SOUTHERN CALIFORNIA

WASHINGTON-BALTIMORE

WESTERN MICHIGAN

WESTERN NEW YORK

"Upholding the Universe by His Word of power." Hebrews 1:3

VOLUME 28 NUMBER 3 SEPTEMBER 1976