JOURNAL OF THE AMERICAN SCIENTIFIC AFFILIATION

An evangelical perspective on science and the Christian faith

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

VOLUME 25 NUMBER 3 SEPTEMBER 1973

MEMBER EVANGELICAL PRESS ASSOCIATION

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Herbert W. Morris
Science and the Bible, Preface, Ziegler and McCurdy, Philadelphia, Pa., 1871

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JOURNAL OF THE
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Wanted: *A Caption*

The curious thing about the cartoon on the cover of this issue of the *Journal* ASA is that there isn't any caption. We need one. *I* think of, "Why isn't there somebody on the bridge?" What do *you* think of? We'll be happy to receive your suggestions and will duly honor the most appropriate caption submitted in a future issue of the *Journal ASA.*

To be "a bridge over troubled waters" has been claimed for many different types of ventures and activities since the phrase was immortalized in song by Simon and Garfunkel. And yet it seems to me that we in the ASA must recognize the special and unique way in which indeed the ASA is called by God to be such a bridge between the scientific community and the Christian community: two all too often isolated islands in the midst of a troubled sea of controversy.

The ASA is an organization of Christian men and women of science. It is not an organization of Christians who are interested in science. Nor is it an organization of scientists who happen to be Christians. Its existence assumes the significance of a whole world perspective to which men and women who are Christians and scientists can make a meaningful contribution. If the ASA were to function only as a particular arm of the Church, it would fail its opportunities in the scientific community. If the ASA were to function only as a sounding board for scientific theories and ideas, it would fail its opportunities in the Christian community. To fulfil the unique potentialities possible in its existence, therefore, the ASA must be intimately related to both the Christian and scientific communities.

The possibilities for this relationship exist in its members. Here are men and women who have made a personal commitment of themselves and their lives to Jesus Christ as Lord and Savior. They know the Christian community from within the family warmth and fellowship. They know the grace of God's forgiving love in Jesus Christ. They understand the call to be a salt and a light for Him in the world. Here also are men and women who have made a personal commitment of themselves and their lives to a scientific understanding of the world. They know by experience not only what science *is,* but what it means to *do* science. They are accepted by their scientific colleagues, respected for their teaching and research, and worship the God of Creation through their obedience to Him who calls men and women to be responsible for this created world in which He has placed us.

WANTED: *A CAPTION*

If a bridge is not to be peopled by Christian men and women of science, by whom is it to be peopled? Scientists who have no real understanding of the nature of the Christian community can get no further across the bridge from their side than Christian theologians with no real understaning of the nature of the scientific community can get from their side.

Wanted: *A Commitment*

By its very nature the ASA has provided some kind of bridge for more than 30 years. Sometimes it was perhaps more like a swinging bamboo bridge, fragile and mobile. And sometimes perhaps it was more like the bridge over the River Kwai, the purpose and circumstances of the construction of which were almost forgotten. But a bridge it has been and a bridge it remains, today with new foundations and a vision of a new stability.

Bridges do not just appear; they must be built. And the building of bridges, like most other worthwhile activities, costs. It costs in time, concern, personal involvement, prayer—and not surprisingly it also costs dollars. Just a year ago the ASA hired its first full time Executive Secretary, who has in his first year already made major strides toward increasing the number of members, strengthening the local sections, finding alternate sources of funding, and developing a program in which the particular gifts of Christian men and women of science can be most appropriately used for the witness of Jesus Christ.

Recently his efforts have been blessed by an amazingly timely opportunity: a foundation has offered to contribute $10,000 to the ASA if others will contribute $10,000 to this project before November 30, 1973. This means that for every new contribution of $1.00 that our members can make, the effective contribution for ASA will be $2.00.

The present level of membership dues and of non-member *Journal* subscriptions do not by themselves provide the kind of financial support we need for the ASA to respond to the challenges of a modern day in which science is exalted on the one extreme and denigrated on the other. We need a secure financial base, which a few members can build, each by recognizing the appropriateness of a small portion of his regular tithe for the work of the ASA. This kind of financial base is being sought in the establishment of a $100 group, men and women who each pledge to contribute $100 to the work of the ASA in one year. We already have 50 such members with the vision and the means to make such a pledge. We need at least 50 more. With almost 2000 members, is this too much to expect?

And now we have the additional challenge of foundation matching support for the expansion of the work of the ASA into new areas and opportunities beyond that involved in the regular annual budget.

Get out on that bridge!

Wanted: *A Helping Hand*

I recognize the unique call of God to the members of the ASA. I pledge, as God enables me, to contribute as I have indicated below:

I wish to join the $100 group, pledging this amount per year _____

I wish to make a special gift to take advantage of the special opportunity for foundation matching funds for ASA expansion _____

Signed: _____

Please mail this pledge or your own personal note to Bill Sisterson, Executive Secretary, ASA, Suite 450, 5 Douglas Ave., Elgin, Illinois 60120, to let him know that you are supporting this work through your prayer and gifts.

Natural Science and Christian Faith as Elements in a Cultural Continuum

W. W. WATTS

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

Many of the contemporary problems, including the science-faith controversies, call for a holistic view of Man and of the intellectual enterprise. Natural Science and Christian Faith can no longer be viewed as autonomous, but must be seen as related via a cultural continum. The integration of the two areas is difficult with a simplistic view of scientific method. As the complexity and humanness of the scientific process is understood, we can gain appreciation for the similarities of approach in the two disciplines, science and faith. This hopefully can lead to a reinforcement and enrichment of each.

Academic Specialization

There seems to be, in our generation's overemphasis on fragmentation, an academic specialization which fails to recognize a holistic view of man, of his environment, his social interactions, and his faith. Each academic discipline seems to cherish a vision of man as centered about the reference frame of that discipline. We so often find such terms as creativity, liberal arts, and humanity defined in terms of what they are not. For example, creativity is sometimes defined as that which is *not* logical, liberal arts are defined as those disciplines which are not practical or technological, humanity is defined as that which is not related to material existence etc. We are in many of these cases acting as academic bigots and fail to realize that our generation desperately needs a holistic view of man.

Proposing A Synthesis

My particular concern in this paper is a rapprochement between science and religion. In a broader context, I am concerned with the synthesis of the academic diciplines in an evangelical context of the liberal arts ideal. If indeed all truth is God's truth, then our preoccupation with academic provincialism is producing, rather than a liberal arts synthesis, a multi-arts fragmentation which negates the overwhelming integrating enterprise to which we are called. If we believe in the integration of faith and learning, we must attack the walls that separate, and we must aim for a complete view of the intellectual enterprise.

A synthesis is suggested by the following diagram, which I label The Cultural Continum.

Figure 1 is an adaptation of an idea of H.G. Cassidy in *The Sciences and the Arts*.[1] It suggests that the disciplines are peripherally and radially related. The coherent view of man is integrated by means of philosophical systems and theological frameworks which draw upon, as well as provide a world view for, the various disciplines. Philosophy and religion form the

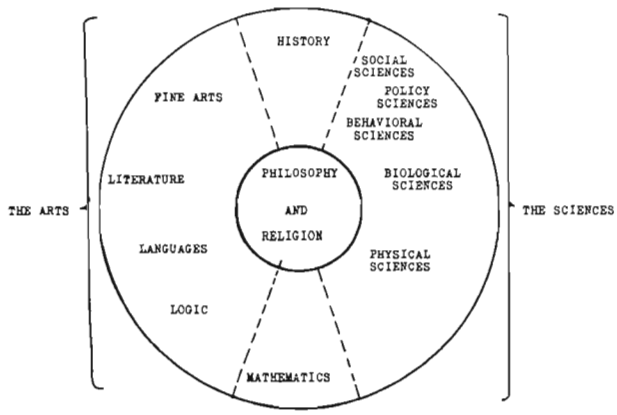

Figure 1. The Cultural Continuum

necessary focus for any integrated picture of man. Circumferentially, the disciplines interact with each other, sharing models, languages, methods, paradigms, etc.

The differentiation of the several liberal arts in this diagram could involve such factors as the role of man, the role of language, the role of objectivity, the role of society, and the role of community. I assert here that if there are differences around the circle, they are substantially those of degree, and not of kind.

There are some common approaches in the two academic disciplines, science and religion, as well as common experiential forms. Before making a comparison, it is essential to understand the goals and methodology of science.

Definition of Science

What is science? An operational definition of science is that it is the search for conceptual schemes or structures. The schemes seem to be man-made, in the full creative sense. The conceptual structures help to organize our experience. They seem to be open to modification and continual testing.

The goal of science is not power, or practicality, or the good of mankind, or survival, or better mousetraps. It seems to me that the goal of science is understanding and everything else is spinoff. At the elementary level, a chaos of stimuli, which we might call percepts, or experience, seems to be uninterpreted. Science attempts to organize, i.e., interpret these stimuli in a consistent conceptual structure. The major constituents of a conceptual structure are called theories, and each theory, then, represents the synthesis of common elements in the various experiences. In this role, theory construction betrays science as being, according to Jacob Bronowski[2], a highly creative activity. Bronowski defines creativity as the fusion of common elements from various apparently diverse experiences. The goal of science is the creation of theories, and the theories of a given science constitute its conceptual structure. Stated in other terms, the goal of science is understanding.

Caricature of Scientific Method

There are some who ascribe a method to science. In this classical view of scientific method, the following happens invariably:

1. One collects as much data as he feels necessary. This stage is called *observation*. The more sophisticated call it experimentation.
2. One makes an hypothesis. The hypothesis is some generalization from the data of step 1. The hypothesis is a tentative guess at some relationship inherent in the data. This step of hypothesis formation is called *induction*.
3. New experiments or observations are suggested by logical means to be consequences of the hypothesis. The logical process here is called *deduction*—the determination of particulars from some general principle.
4. The process of *verification* follows, and, if the hypothesis is confirmed directly or indirectly enough times, the hypothesis achieves the status of a scientific law or theory.

This picture of scientific method is a caricature of what the scientist actually does. I interpret it to be a method of four steps—1. *observation,* 2. *induction,* 3. *deduction,* and 4. *verification*. The overall method is also viewed as objective, in that the scientist acts as an impassive, impartial recipient of data and a mechanical sort of creature, who, with the proper training, accomplishes the theory construction reliably. In a real sense, given the data one is forced to inevitable conclusions, according to this caricature.

There are several reasons why this view of scientific method is inadequate.

1. It so often pictures the complete method as one grand logical procedure. In truth, only one of the steps, deduction, is strictly logical. In the other three steps, the scientist's creativity, his scientific and nonscientific context, accidental occurrences, and all sorts of other nonlogical factors bear upon the scientific investigation.
2. The objectivity of the scientist is suspect. Rather than being a noninteracting, disinterested, and impassive spectator, the scientist is in reality emotionally as well as physically involved in his experiment. He has most likely determined beforehand to prove something. He does more than simply discover whatever comes his way. And, according to Niels Bohr and other quantum physicists, we should be very much aware that the process of measurement is not simply an objective procedure; it is an interactive process. The observer is part of the observation.
3. Objectivity is suspect on a second count, here with regard to the nature of scientific data. As Barbour[3] has expressed it, "All data is theory-laden." That is, the scientist is selective in his gathering of data. By the very act of designing experiments and setting up instruments to measure, the scientist is being discriminatory. At the same time, he is refusing to record data not of interest to him, i.e., he is biased in his attitude toward data. The major cause for this bias is the conceptual framework in which he thinks. The scientist can never completely escape his conceptual framework, and this fact makes strict objectivity impossible.
4. This picture of scientific method is a sequence of steps. It appears to be open-ended, and as such overlooks the interactions among the steps. It fails to recognize that some theories may be well accepted, even though not experimentally proved. In actuality the four steps may occur in concurrence, they may be juxtaposed from this caricature, some step or steps may be missing, and most important, some other processes may be occurring which have been overlooked. Among these other processes are those which we may classify as self-corrective. Indeed, self-correctiveness has been one of the important overlooked elements in the scientific method. I find the feedback systems concept of regulatory mechanisms helpful here.
5. This classical view fails to distinguish between public and private science. These terms are from Gerald Holton,[4] and he uses them to suggest that the more rigid views of scientific method, as above, seem to be concerned with science from the view of the scientific community. However, there is a more creative, less methodologically precise science being done on the individual level. The individual scientist fails to acknowledge a rigid plan. For example, the falling apple is a key to the synthesis of terrestrial and celestial mechanics for Sir Isaac Newton. A bath is the crucial experience for Archimedes law of buoy-

ancy. A trip-like dream leads Kekulé to a geometrical model for the benzene ring. The list goes on, suggesting that the scientist operates as a creative contributor to the growth of public science, only as he is free. Science is impossible without freedom, in particular that freedom from prescribed methodological procedures.

Correction of the Caricature

I find, then, that these five shortcomings above characterize a popular misconception of what I have termed the Classical Scientific Method. In Figure 2 I suggest how some of these failings might be corrected. This I call the Scientific Process. This model is given in more detail in a diagram in *Introduction to Natural Science* by Parsegian, Meltzer, Luchens, and Kinerson.[5] The authors use six blocks and about twenty feedback loops to emphasize the self-corrective features of the Scientific Process. They recognize cultural, historical, and environmental factors as important inputs to the process. Their model emphasizes the complexity of the scientific process, and avoids some of the oversimplification of the classical and other views.

What are the self-corrective mechanisms which operate in the creation of scientific theories? In other terms, what criteria serve to evaluate the suitability of a particular conceptual scheme? Various factors seem to cooperate in the construction and the survival of scientific theories. I list several here:

1. *Simplicity.* Given two candidates for a theory, that one which involves the fewer concepts and complexities is to be preferred—all other things being equal. This was one of the important criteria effecting the choice of the Copernican heliocentric system over the Ptolemaic geocentric system. Each of these two theories seemed to predict and explain the phenomena mechanically—but the sun-centered system involved fewer assumptions, a shorter list of devices for explanation, and an overall simplification of conceptual relationships. Other terms which express the criteria of simplicity are *economy* and *parsimony.*
2. *Generality.* A theory is judged most successful when it encompasses a large number of instances. A significant reason for the success of the Newtonian gravitational law was its comprehensibility. The previously accepted Aristotelian schemes pictured a layered universe, with separate theoretical pictures for each layer. The Newtonian synthesis unified these regions in one universal conceptual scheme. Obviously, the concept of generality is closely related to the idea of simplicity.

If we believe in the integration of faith and learning, we must attack the walls that separate, and we must aim for a complete view of the intellectual enterprise.

3. *Internal Consistency.* Where logic is required it should be correct. There have been instances in the history of science where this was not so. There is not much more to say about this criterion except that when a scientist is involved in a complex matrix of logical interrelationships, he should be very careful. On the other hand, he is confident that logic is of such a nature as to lead to new insights, new relationships and new predictions.
4. *Falsifiability.* The theory must be open to test, and indeed the theory should suggest how one might attempt to disprove its consequences. The clearest cases of pseudotheories are claims of medical quacks. These practitioners resist probing tests of their data, an open admission of some failure in their theories. A theory which cannot be tested is not a scientific theory.
5. *Repeatibility.* Not only should the theory be falsifiable, the testing should be repeatable—by different people, at different times, in different places. This is a criterion which is never satisfied to the letter, but as in the case of objectivity, the scientist aims for the ideal.
6. *Predictability.* The aim of science is understanding. Understanding is gained as successful predictions are made. The degree of predictability varies from science to science, but to some extent every science attempts to deduce future phenomena as consequences of the theory.
7. *Visualizability.* The scientist works with models, i.e., he focuses his attention on various features of his experience and somehow pictures the complexity of the situation in terms of things like billiard balls, levers, water waves, chunks, or wheels, etc. Most successful theories have involved the use of pictures.
8. *Aesthetic nature.* There are several less easily identified factors which serve to evaluate theories. The scientist talks of beauty, of symmetry, of elegance, of perfection, etc. Because of the creative nature of the scientific process, the scientist shares with other artists those unutterable experiences which are evident in all intellectual

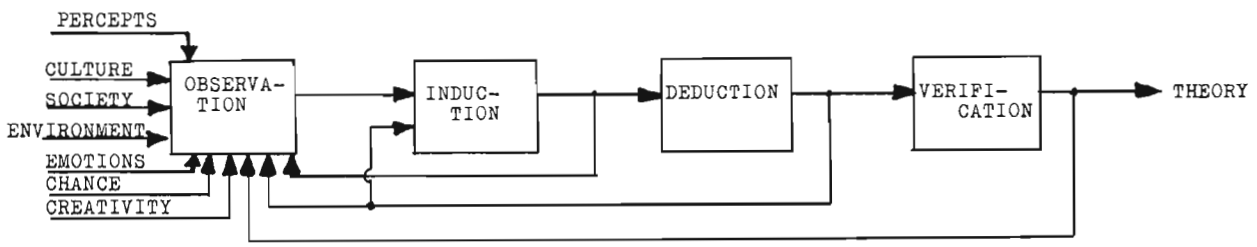

Figure 2. The Scientific Process

disciplines. The final form of Maxwell's equations of electromagnetic theory, for example, were originally adopted because, in the words of Norman Campbell,[6] the second set of equations were "prettier". Beauty is one of the features of the scientific process which is too often overlooked.

Relating Theories to Experience

There are at least four views of the relationship of theory to experience: positivism, instrumentalism, idealism, and realism. The positivist believes that theoretical schemes are artificial, misleading, and to be avoided at all costs. From this viewpoint, there is nothing but data, instruments, and man as the receiver of information. The real is the observable.

Instrumentalism holds that theories are means to an end. Science to the instrumentalist is useful. There may be some relationship of theory and experience, but that is beside the point. We value theories for what they will do for us, according to this school.

Idealism views theories as mental constructs. The idealist is imposing mental pictures upon the chaos of sense data. Here the emphasis is placed upon man as knower.

The realist holds that theories represent the world of experience. Theories to him are more than artificial, or useful, or imposed by the mind. Theories are in some sense pictures of the real world. To the strict realist, they are exact pictures.

Convergence of Science and Religion

Rather than being in isolation or conflict, science and religion have the potential to reinforce one another. There are at least two senses in which the two disciplines converge. First, the two quite often are dealing with the same phenomena from different viewpoints. Each, for example, is concerned with origins, with life, and with sustaining forces in the universe. The fundamental substratum of reality that each is addressing seems to be the same. Here there is the potential for conflict or mutual support.

The second area of convergence is in terms of method. Analogically the two seem to display similar processes in the search for acceptable understandings.

We read the following:

Genesis 1:1: In the beginning God created . . .

Genesis 1:26: And God said, Let us make man in our image, after our likeness; and let them have dominion over the fish of the sea, and the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.
So God created man in his own image, in the image of God created he him . . .

Genesis 2:19: And out of the ground the Lord God formed every beast of the field, and every fowl of the air; and brought them unto Adam to see what he would call them: and whatsoever Adam called every living creature, that was the name thereof.

Romans 1:19, 20: That which may be known of God is manifest in them for God hath shown it unto them.
For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even his eternal power and Godhead, so that they are without excuse.

John 8:32: If ye continue in my word, then are ye my disciples indeed: and ye shall know the truth and the truth shall make you free.

John 16:13: Nevertheless, when he, the Spirit of truth is come, he will guide you into all truth.

Several strands of ideas run through the above verses, and suggest to me that science and religion both require the participation of man as creative knower and interpreter.

1. A fundamental aspect of God's nature is His Creatorhood. And Man is made in God's image. By nature, Man is a creative being. In the same context of being made in God's image, Man is given the charge over nature. Man is given the responsibility to utilize his creative energies to understand and control nature. As I have suggested in describing the scientific process, there is no control without understanding.

Rather than being in isolation or conflict, science and religion have the potential to reinforce one another.

2. In this charge from God, the scientist has an arena of freedom appropriate to any creative being. Adam named the animals. The scientist today names his concepts. He can name the animal whatever he wills, and he has a wide range of tenable conceptual theories, but the animal does not change with the name, nor does the substratum alter as the conceptual structure is modified or abolished. The aspects of creativity, self-correctiveness, and experience cooperate to provide understanding. Man as knower requires at least these three.
3. The section from Romans suggests that there is an underlying substratum which evidences the typical features of orderliness—causal relations, uniformity in time and space, common qualities, etc. The substratum is understood through the things that are made, by Man as creative knower.
4. There are prerequisites for knowing, both in science and religion. At a minimum, each requires a type of commitment.
5. There are differences between science and religion as regards man as knower.
   A. There is nothing in science comparable to religious revelation.
   B. Faith in science is in terms of working principles, orderliness, etc.; faith in religion is commitment to a Person.
   C. In each, there are no uninterpreted data. In the case of Christianity, we hold that the Holy Spirit is a reliable interpreter of the Christian revelation. In science, man is the interpreter of all data. All data in science is theory-laden. Likewise, no religious statements are concept-free.

There are differences in subject matter and emphasis, but I hold that many differences are in degree only, and that there can be no rigid dichotomy.

One of the criteria for a successful scientific theory was that of visualizability. Symbols and models seem to abstract away features not of interest in a given theory construction. The model is normally then a caricature of any total experience. It is a picture drawn in

terms of known objects and relations as extended to the new experiences. The model is a representation of the unknown in terms of the known. A model is an analogy. The totality of models of a given conceptual structure is sometimes called a paradigm.[7]

Religion abounds in models and symbols. Jesus Christ, for example, is (1) the light of the world, (2) the good shepherd, (3) the bread of life, (4) the way, the truth, and the life, (5) the Lamb of God, (6) the door, (7) the vine, (8) the Word, and (9) the resurrection and the life. These are, basically, models which are used to convey certain understandings to us. Likewise, the parables of Jesus serve as models. And countless other examples of the use of models are integral to the expression of the Christian message.

Features of Models

Several features of models are appropriate in both science and religion:

1. The model uses visual or verbal pictures to convey understanding.
2. The model may convey more understanding than we expect it to. In other words, it may be extendable and provide new insights.
3. The model may convey less understanding than we expected it to. Stated otherwise, all models have limitations. The Newtonian model was thought to apply to all physical situations; it failed on the submicroscopic level. Likewise, the statement of Jesus, "I am the bread of life" gives us the understanding that we are to live in a vital dependence on Him – the model does not serve to give us a visual or a physical-chemical understanding of Jesus. Combining 2. and 3., then, we can say that all models are extendable, with limitations.
4. A distinction should always be made, therefore, between a model and understanding.
5. Since models serve to provide understanding, they must be expressed "in the language of the people". The models of science include diagrams, equations, and logical statements. The models of religion serve a wider constituency, and those models which cross the cultural and social continum are appropriate here.

We as Christians and scientists need to get beyond the stage of talking to ourselves and arguing with each other. We need also to go beyond the point of talking to people who never listen and to people who aren't there.

Significance of Community

For my final comparison, I emphasize the significance of community to the scientific and the religious processes. The Bible informs us:

> Ephesians 2:19-22: Ye are no more strangers and sojourners, but fellow citizens with the saints, and of the household of God; And are built upon the foundation of the apostles and prophets, Jesus Christ himself being the chief corner stone,
>
> In whom all the building fitly framed together groweth unto an holy temple in the Lord.
>
> In whom ye also are built together for an habitation of God through the Spirit.

We are all aware of the many other Scriptural passages which point to the importance of the church as a community: that the church is Christ's bride, that it is essential that we meet with other Christians, that we cooperatively advance the cause of Christ, that the members of the church seek unity, that the church continues despite loss of its leaders, that the church serves a role of indoctrination, that the church serves as a voice to those outside its borders, that the church serves as arbiter of differences, there is no Christianity without the church, etc.

William Pollard, in *Physicist and Christian*,[8] draws many important comparisons between the role of community in science and religion. He speaks as one who shares membership in the two communities. Recalling some of his comparisons, I will list characteristics of the scientific community, trying to parallel what was said above:

1. Scientists meet regularly in scientific conventions, under the auspices of ongoing scientific societies. These meetings serve informative and administrative functions.
2. Scientists cooperate toward various goals. As Jacob Bronowski[2] has stated, there is an almost religious sense of commitment, toleration, and honesty at work as scientists seek new understandings of the natural world. The goal is more important than individual differences or prejudices. Science, like the Church, is international and transcultural.
3. Although science cherishes strong leaders of the Newton-Einstein caliber, science does not die without them. Science progresses because men as creative knowers in interaction with the natural world can cooperatively understand. Religion advances when men as creative knowers in interaction with God, the natural world, and others, cooperatively understand.
4. The scientific community serves the role of indoctrination. The textbook, classroom, journal, and scientific meetings serve to transmit the systems of paradigms from one scientific generation to the other. The role of education is essential to both science and religion.
5. The scientific community serves as arbiter of differences. The scientific journals with their reviewing procedures screen those contributions which seem significant to understanding.
6. Finally, I hold the obvious to be true: there can be no science without the community of scientists.

These are some of the things that have impressed me regarding the relationship between natural science and Christian faith. We as Christians and scientists need to get beyond the stage of talking to ourselves and arguing with each other. We need also to go beyond the point of talking to people who never listen and to people who aren't there.

A responsible integration of faith and scientific learning in the cultural continum will, to my mind, involve the appreciation of a personal-infinite God and of what He has created, the articulation of a well formulated Christian philosophy of science, and the affir-

mation of what we as evangelicals know to be true as a result of the infallible revelation of the Word of God.

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A Letter to Young People

SATISFACTION, DRUGS AND IDENTIFICATION

JAMES G. ASHWIN

Health and Welfare Canada
Bureau of Drugs
Ottawa, Ontario, Canada

Who Are You?

Who are you? What is your identity? What are you meant for? Some people spend a lot of time on these questions. If a person is satisfied as to who he is and what he is doing, he will not be anxious, he will not worry, and he will not be fruitlessly searching for other kinds of satisfaction.

Your home, family and lifestyle all make up facets of your identity. As you grow up and test life's processes daily, you determine whether the things around you are satisfying or not. Dissatisfaction leads your mind and body to look around, often desperately, for an alternate interest to soothe unpleasant moods and make your life satisfying. "A Search For Identity" really means that you realize you are in the wrong place or doing the wrong thing, and you will be restless until you find that work that you were created to do.

Solving Your Problems

Let's look first at how you solve your own problems. Read a book, play hockey, eat, go and pout and rationalize—yes all these can satisfy and will very often remove, at least temporarily, your depression. But if your anxiety is because of a personal problem, sometimes this abnormal feeling is best removed by solving a difficulty with your parents, a teacher, or a close friend.

Many people seek to solve their problems by overeating, using drugs, or sexual excess. Temporary satisfaction may be achieved by such indulgence, but the problem is not solved, and your whole body is not really doing what it was designed for. What happens?

With frustration, or when the difficulty does not go away by itself, you may try to put the blame on someone else. This may be a near or dear one who becomes an object of resentment, hostility, antagonism and hatred. Anger and rage cut off communication with possibilities of vengeance or violence and family breakups, or running away from home.

Drugs

Turning to drugs for satisfaction, the frustrated person finds only temporary relief. There also could be a strangely pleasant "trip", possibly drunken as with alcohol, and yet it may extend all the way to permanent mental sickness and even death. After an apparently "successful" trip, trying for a repeated thrill or for extended satisfaction may lead to larger doses, more (hopefully) exciting wallops and more (unexpected) side effects. But without any control over the kinds or degree of effect he is getting, the witless show-off is playing a dangerous game of Russian roulette. At this point only a miracle can enable the youngster to find himself and repent of his waywardness.

If the drug used is a stimulant (cocaine, caffeine, amphetamine), one may have the illusion that he can rise above his troubles. When a depressant is used (opiates, aspirin, alcohol), one is more relaxed and may easily forget or sleep away pain, self-pity or trouble.

(*continued on page* 98)

Drugs in these categories that are properly prescribed by medical doctors can be decidedly useful to a sick person in need. But uncontrolled and unauthorized use of these substances are just as decidedly harmful. Distorting drugs like L.S.D., marijuana (not always in this category), mescaline and others provide a certain amount of chumminess amongst similar individuals of a peer group, but can be even more harmful than the stimulants (ups) and depressants (downs) in not having a reliable source, or a well-known pharmacology, and can cause profoundly abnormal behavorial effects.

Drugs have been claimed as a "way" to find oneself, but among those who have tried the illegal use of drugs and not become hooked on them are those who would be first to describe drugs as a chaotic road to nowhere. Those who have decided to quit drugs were some of the first to learn their real identity.

Who are you? Having been provided with a beautifully articulated body and a normally functioning physiological system, you are at the same time the product of your environment. Your brain has recorded millions of impulses from events you merely considered as sights or sounds, tastes or touches. Knowledge, experience and abilities have all been programmed into your brain and its many ramifications, a computer network that is a gift to you from a loving God. Yet, what are you and who are you? All the complexities of life, forever changing and increasing in number either make one's life more complete or more distressing, more satisfying or more mixed up.

Happiness is Knowing Your Identity

It is an immensely encouraging thing to see a person fitting into his job, responsibilities and environment so perfectly that there could be no one happier and no business more flourishing. It is like the small tape cassette that fits into the recorder and plays beautiful music. That happens because the cassette tape recorder was designed to do that very thing. And if a person is doing exactly what he was created to do, he won't have an identity crisis. Happiness is knowing your identity as well as you know your own name. It is satisfying. If you are a mechanic, you won't be happy as a pastry cook.

The Christian sees his place in life identified just as specifically as the mechanic. The identifying role of a Christian is in being closely related to God. He depends on God for his solid foundation in life, for his source of truth, and for his eternal hope. His reliance on an ever-loving God provides a faith to live by, and a source of peace and satisfaction that is close by, deeply personal and caring. Not only can the Christian pray to his God, but the dialogue flows both ways as the identification and trust become more complete.

When we begin to communicate with our God whom we recognize as our Creator, then we find our personal lives suddenly meaningful. Everything begins to show a new purposefulness. Satisfaction shows itself in every trial, every victory or defeat. When God is behind the scenes, the stark pictures that portray life deserve a new interpretation, and become complete only when His purposes are considered. Ultimately, the Christian who is trusting God sees the rich promises of the Bible coming to fulfillment in Jesus Christ. Ordinary people suddenly become identified as those to whom power was given to become the *sons* of God (John 1:12), by believing in His Name.

Identified with Him

Thus we can rejoice with all of creation, all of God's creatures, who know their Creator. We are identified with Him as sons of God by adoption. As a member of this royal family, we find ourselves sharing fellowship with a great company of identified people, all designed to love and honor the Father, Son, and Holy Spirit. This indeed is satisfaction.

In Calvin's Institutes *he states in the chapter on Providence that God's fatherly hand is in all things that happen; the stars could do no harm, all fear is groundless for God reigns. The order comes from God, but the deviations from this order, the* extra-*ordinary events, are likewise from him. From this point of view there is no essential difference between ordinary events, such as the sequence of day and night; extraordinary events, such as earthquakes; and miraculous, or even unique, events—"Sun, stand thou still." In Calvin's writings there is no talk about supernatural acts or interventions; God's Providence is "obscured" by those who connect it with special acts only. . . .*

According to A.D. White (A History of the Warfare of Science with Theology in Christendom, *London 1896) Calvin took the lead (against Copernicanism) in his Commentary on Genesis, by condemning all who asserted that the earth is not at the center of the universe. He clinched the matter by the usual reference to the first verse of the ninety-third psalm, and asked, "Who will venture to place the authority of Copernicus above that of the Holy Spirit?" White evidently borrowed this latter quotation from Farrar's* History of Interpretation. *. . . For fifteen years, I have pointed out in several periodicals concerned with the history of science that the "quotation" from Calvin is imaginary and that Calvin never mentioned Copernicus; but the legend dies hard.*

R. Hooykaas
Religion and the Rise of Modern Science, Eerdmans (1972), pp. 108, 121

The Relationship of Drugs to Contemporary Religion

A. ROBERT DENTON
Furnace Street Mission
Akron, Ohio 44309

INTRODUCTION

Among the concerns that demand our attention as a country, as families, as philosophers, theologians, and churchmen, the problem of drug abuse has been outstanding. Its only rivals come, perhaps, from our crime, poverty and environmental difficulties. Remembering that all social problems are intensely personal problems it should not seem too far afield to seek religious under- and over-tones to such a personal problem as drug abuse. My own interest in the subject has been cultivated by my experience with residents at the halfway house which I direct for exconvicts and through contacts made with one of the many drug-groups at Kent State University.

Drug abuse forms an interesting pattern which relates to our country's past. We can detect a definite correlation between technology, historical problems, and drug abuse. During the 1800's the needle and syringe made their first appearance in our country. By 1860 morphine sulphate was developed and came into its own during the civil war. As man devised better ways to kill and maim he found that, medically he was limited to the practice of amputation and reduction of pain. The latter was largely responsible for rise of morphine as a problem. By 1865 we had over 400,000 addicts and morphine addiction came to be known as the "Soldier's Disease."

Someone then came up with the enterprising idea that if one substituted heroin for morphine the problem would cease and, sure enough, soldier's disease began to disappear—morphine became less and less in demand. And then we discovered that heroin was 15 times stronger than morphine and the problem had only begun. [In the background, keep in mind that the railroads were pushing their way from the West using oriental workers who brought with them their supplies of opium].

In 1906 a drug reform bill was passed to bring more strict limitations to the use of drugs. However, by 1919 the problem had grown to such proportions that further legal action was undertaken. In 1920 the Courts prevented physicians from writing prescriptions for heroin and transferred the treatment aspect from the doctor to the realm of law enforcement.

In 1927 amphetamines (speed) made its appearance and was very helpful during the war when people in transportation had to work long hours. Someone also noticed that its use curbed the user's appetite, so our country was introduced to what has been called the "diet pill" with its thousands of unknown addicts.

In recent years three distinct eras can be observed.[1] (1) Prior to 1965 drug abuse was confined to select groups—doctors and jazz musicians. (2) By 1965, however, Dr. Timothy Leary from Harvard had begun to make his impact (by the way, Leary neither smoked nor drank). Jazz groups picked up his message and proclaimed they had found instant beauty. The media joined in and the average age of the user at this time was about 23. Then came the bummers and the media began to change their message; people reacted with hysteria in certain areas and consequently brought about some quick legislation. (3) 1967 began the third era. It was characterized by the death of Haight Ashbury. The flowers and love withered. The teeny-boppers and plastic groups made the scene and the average age of the abuser dropped to 15. The drug was speed. It began with popping Mom's diet pills and graduated to shooting [by the way, 76% of the shooters go on to heroin].[2]

We have today, a society where over 17 million

A few general comments are in order. 1. Due to the variety of personalities which construct the drug-abuse scene, not all involvement can be attributed to religious motives. (e.g., the common experimenter). 2. I have narrowed our study to those aspects which relate to the field of religion. This means we are considering a very limited and select group within the vast community that represents a continuum varying in aspects of frequency and nature of abuse. 3. We concern ourselves with the hallucinogens as a broad class and for the purpose of the paper, include marijuana in that group. 4. I make no claim to be exhaustive. It is my main concern to be informative and illustrate the religious aspects of drug use. I hope I can stimulate some interest to the point that we can wrestle together with this problem that has made the entire church feel almost helpless and certainly not blameless.

young people have used marijuana more than once (⅓ of these will use it until they are thirty and become problem cases). 7 to 8% of the regular users will become skid row cases. In a recent study it was discovered that of those who used it only once and then stopped, only 1% ever graduated to using acid. Those who used it once a week, however, had 58% of their ranks graduate to acid. Of these who used it once a day 77% had "dropped" acid.[3] While some of the drug abuse has tapered on the West Coast, "grass" has had a continued popularity in the midwest and it is predicted to continue for another two years.

With the above as background material, let us look to some of the phenomena of drug use that has particular relevance to the religious motivation behind the use of drugs.

DRUG PHENOMENA

I wish to point out in this section certain drug experiences which are pertinent to the religious application of the hallucinogens. No attempt can be made to include all of the drugs of this classification. Nevertheless, I believe it is possible to point to a common groundwork of sensations that are the core effects desired by the religiously oriented user.

Marijuana (grass, Mary Jane, bhang, cannabis, pot, etc.)

Cannabis is most basic to our consideration. Much is being learned each day that alters what we previously had thought. It is found in a variety of strengths and has a broad nomenclature. While effects vary, the user who imbibes the smoke with as great a quantity of oxygen as possible usually experiences a transient euphoria with feelings of superiority and superhuman powers of insight. Sights and sounds become very vivid and meaningful. There is a distortion of the user's sense of time and space coupled with loss of judgment. As well as exaggeration of sympathy and antipathy, the user reaches "El Kif" an Indian term for "Blessed Repose." At this point the will to act is severely restrained and one experiences what may be called "oneirocritic ecstasy."[4] One 20 year old woman stated that while smoking pot, "she became convinced that she did not exist in a spatial sense." She thought that she was merged with the universe or, alternatively, a point in space without dimension. Another said that "during the experience and for some time afterwards she would have the 'horrors' ". She described this as a feeling that indescribably evil things would happen to her because of the kind of person she was.[5]

Marijuana produces a marked dependence factor (note I did not say addictive). Dr. Edward Bloomquist told the National District Attorney's Council on Drug Abuse, "He [the user] gets hung up on a life cycle. This guy is as much a slave as the heroin junkie except for the physical results . . . . there is an increased factor that influences a search for mystical religions along with a preoccupation with the new morality. One can philosophize readily but logic is impaired. One convinces himself that everything is beautiful." Bloomquist added, "It alters the user's relation to reality. It removes kids from a rational religion."[6] Many have referred to it as the "Heavenly Guide" because they have had illusions of beholding the infinite. In summary, "Cannabis is a surprising drug that can make the impossible seem real and the real seem unnecessary."[7]

LSD—Acid

Under LSD the user can experience a variety of hallucinations, delusions, time and space distortions, abnormal body sensations, and other deviations from normal consciousness.[8] It is here, particularly, that we begin to touch the mind expansion element. In reality, it is more of a distortion rather than an expansion of consciousness but has been labeled such because one's sense of perception is immensely accentuated. Wilder Smith writes, "Changes in thought follow a free flow of bizarre ideas . . . . some LSD adherents claim inspiration under the influence of the drug . . . . the subconscious rises to the conscious level.[9]

We can detect a definite correlation between technology, historical problems and drug abuse.

Above all, the tripper seems to experience an accentuation of all reality—light, shade, color, etc. These effects actually become a source of ecstasy (a word which has become very much a part of most definitions of religions). The person experiences new aspects and dimensions with entirely new insight to himself and other phenomena. As Smith writes, "their eye has learned to see the transcendent and their ear has become accustomed to transcendental melodies."[10] "Most of us live 70 years. The acid user lives a million years in a second. It is a highly intense thing—he not only talks with God he *was* God. This religious thing has become a real thing."[11]

A number of trippers have very genuine mystical experiences and it is at this mystical experience that one reaches the psychedelic peak or transcendental experience that is of particular interest to our topic. Thse mystical experiences can be classified under 8 headings:

1. *Oneness with the cosmos; a sense of unity with it.*
2. *Transcendence of time and space in which the subject feels himself to be outside dimensions of space and time.*
3. *Blessedness, peace, love, deepest emotion.*
4. *Awe, wonder, humility, reverence, sacredness of the experience.*
5. *New insight into the meaning of life and a new sense of values.*
6. *The paradoxical experience in which the tripper recognizes the identity of opposites.*
7. *The ineffable experience which words are incapable of describing.*
8. *The experience of transience, which occurs when the main insensity of experience of permanent change of behavior is taking place and is the result of the mystical LSD trip.*[12]

In addition to LSD there are other forms of hallucinogens very similar to it and in some cases stronger. Mescaline (Peyote), which is derived from the peyote cactus plant, is used by the Native American Church. A dose of 350 to 500 mgs. produces illusions and hallucinations from 5 to 12 hours. Psilocybin and psilocyn are derived from certain Mexican mushrooms and are similar to mescaline except more potent—a dose of 4 to 8 mgs. is ample.[13] DMT, Buffotenine, Ibogaine, DET and DOM or STP are others.

Concluding this section, a number of factors are

important to keep in mind. First, as Dr. Winick said, "Drug experience is an immanent, arational experience."[14] It is a "NOW" experience. Generally, the drug user has little sense of the future or his functional relationship to it.[15] It is an intensely individualistic thing; extremely subjective (hence, at times, not even words can describe it). It almost appears to be an attempt to "Go West young man, Go West" *within* the borders of the user's mind rather than geographically *without*. It is not uncommon to hear the user justify its use in order to "Get my head straight." It's an attempt to expand the individual's conscious; to experience and feel all of life. Jannis Joplin said, shortly before her death by an overdose of heroin, that when she was singing, "I'm not trying to think; I'm trying to *feel*."[16]

Add to the above elements an aspect of commitment in a religious proportion that has been thwarted by conventional sources of spiritual gratification and we are then ready to consider the religious nature of the phenomena in practice.

RELIGIOUS PHENOMENA

Keeping in mind those aspects summarily covered above, consider the religious nature of the drug culture and its particular relationship to several of the hallucinogens.

East/West

One must observe the important distinction between Eastern and Western thought. This is the stage upon which the religious drug scene takes place. The West has been traditionally objective, materialistic, and "realistic". The East has been traditionally subjective, pantheistic, ethereal—mystically oriented. The early Greek ideas and Judeao-Christian message proclaimed that a "plan and purpose reflected the nature of a rational and energetic God who had created the universe. Because western man believed this explanation modern science was born."[17]

Eastern religions, on the other hand, teach, "that all things that exist in the universe . . . are of no importance because they are temporary . . . . the only important thing is the realm that exists out and beyond the world."[18] The Eastern mind thinks that one can reach the realm only by completely denying the world around him.

The groundwork laid by drug effects predisposes the user to a form of Eastern religion such as Hinduism, Buddhism, Bahai, etc.

We must realize that science and technology have divorced themselves from their original presuppositions; they have produced a "law unto themselves", so to speak. Presently, our culture is reeling under this as its implications begin to influence our four basic institutions of socialization. Hoebel, an anthropologist, says that dominating the contemporary American thought-patterns is a rational and mechanistic concept of the universe that has smothered the mystical aspect of life emphasizing action rather than contemplation.[19]

Couple this with America's (and, increasingly, the world's) depersonalization, industrialization, and urbanized culture and it is not difficult to see how man loses his internal personality. Wilder Smith says, "modern technology is putting man out of touch with transcendence, in general . . ."[20] We should not be surprised, therefore, to find a surge of reaction forming against this vacuum, whether it comes from a poet, from a Marcuse, and/or a fed-up generation which has discovered itself in a very real predicament. "Man's lack of interest in the Divine and his absorbing concern with power, possessions and his own ego, show him to be lost and, therefore, because he has found no divine redeemer, damned."[21] Against this background the religiously oriented user does his thing in search for identity, meaning, ecstasy, transcendence and personalization.

It is the author's contention that with the reaction of a portion of our populace against western culture, a number of the 'seekers' have turned to an Eastern framework and that the groundwork laid by drug effects predisposes the user to a form of Eastern religion such as Hinduism, Buddhism, Bahai, etc. It is by no accident that Leary should include in his book, *Politics of Ecstasy* that he has become a Hindu.[22]

Leary says that psychedelic experience is fundamentally a religious experience—transcendentally oriented. "The instruments of systematic religion are chemicals. Drugs, Dope. . . . Drugs are the religion of the 21st century. Pursuing the religious life today without using psychedelic drugs is like studying astronomy with the naked eye."[23] This is the case, says Leary, because "man is so sick . . . . that today it is safe to say that drugs are the specific and almost the only way that America is ever going to have a religious experience."[24] "You see, 7,000 or 4,000 years ago LSD wouldn't have been necessary. Man was in touch . . . . he was in tune, he was turned on. LSD existed in natural form."[25] What the world needs, Leary would say, is not love, but a transcendent mystical ecstasy that can bring the tripper into a new relationship with God.

Life and the use of drugs must be strictly religious. Religion is ecstasy and this, says Leary, is the main emphasis of the psychedelic drug revolution—not escapism and not kicks, *per se*. The purpose lies in man's search and need for euphoria and the only channel through which it can be obtained is via hallucinogens. Leary has worked out an interesting theology at this point. Realizing the risk factor of LSD, he writes, "I'm operating from a religious metaphor. I say that the confrontation with divinity is going to change you and there are some people who are using it in such a state of sin that they don't want to confront divinity; they freak out [*def.* to lose all contact with reality; to have a bummer or a bad trip]. Such people should be warned that if you come into the temple you're going to face blazing illumination of the divinity. It's going to change you completely; you're never going to be the same."[26]

If chemical mysticism can meet even a fraction of our euphoric/ecstatic deficiency, then perhaps we should not wonder at the helpless feelings some of us have experienced as we have watched the young defect to the drug induced springs filled with the waters of deception.

Religious Phenomena of Certain Hallucinogens

1. Cannabis or Marijuana.

While LSD has played a main role in psychedelic re-

ligion it has to be remembered that cannabis has not been excluded. Leary says, to participate in the "Sacrament" of drugs, "Marijuana should be used once daily and LSD once weekly."[27] This practice induces enrichment of human experience, increased creativeness and the expansion of the human consciousness. "The remarkable thing about cannabis", writes Bloomquist, is that "whatever you were before you took the drug, whatever you had in mind as the goal to reach while in it, is increased and enhanced . . . . If one wishes to pray, one may think he is in intimate contact with the Eternal."[28] After a cannabis induced trip a jazz musician remarked, "since then, I have been a soul." One of the most common replies is the user's insistence that he has talked with God and that he has gotten in tune with the universe or has in some similar way explored the mystical and the occult.[29]

In Jamaica the lower classes call it the "wisdom weed" and use it to enhance their good qualities and get closer to God.[30] Its use has been common to many of the Negroe Cultures in Africa where it has been used to provide supernatural powers for the witch doctors.[31] India has used it to obtain a hallucinogenic state for hundreds of years as an aid to spiritual attainment. Throughout the orient it is used for similar effects, especially for successful yoga—which is big among many of the committed users.

2. Peyote

Peyote has been used and is continuing to be used legally to induce hallucinogenic states of worship within the Native American Church. "The Peyotists contend that in the drug-induced state they receive spiritual power . . . . by observing the rite properly the individual's sensitivity is heightened either in reference to himself (introspection) or to others (mental telepathy). The introspection is an intensive self-evaluation which leads to silent or vocal prayer to God, confession of sins, repentance, and consecration of the Peyote ethic in the future."[32]

3. Psilocybin.

Psilocybin (derived from the sacred mushrooms of the Aztecs) is in continued use today by a group of Mexican cultists who have syncretized native beliefs with Christian beliefs to construct a "theology" which asserts that the plant is a gift from Christ which enables others to communicate directly with Him.[33] Today this drug has become one of the more widely used and most powerful of the hallucinogens.

4. LSD

We have already mentioned a great deal about this chemical. Leary regards it not just as a medium but a sacrament comparable to the Roman Catholic concept of the Host.[34] LSD for Leary is "Western Yoga. The aim of all Eastern religions, like the aim of LSD, is basically to get high: that is, to expand your consciousness and find ecstasy and revelation within."[35] Again, "LSD and the LSD cult is perfectly in tune with the wisdom of the Buddha and the great philosophies of the past. The Buddha could walk up the road to our house here at Millbrook and he'd see the signs of his profession because we belong to the same profession, people who are changing consciousness, who are pursuing the eternal quest.[36]

Should you have any doubt about the relation to LSD as an experience, listen to the words of a chronic alcoholic who was hospitalized, given LSD, and who had previously had very little interest in religion.

> I found myself drifting into another world . . . I saw a gleaming, blinding light with a brilliance no man has ever known. It had no shape nor form, but I KNEW that I was looking at God Himself. The magnificence, splendor and grandeur of this experience cannot be put into words. . . . All the trash and garbage seemed to be washed out of my mind. . . . It seemed as if I were born all over again . . . goodness and peace . . . all around me. Words cannot describe this. I feel an awe and wonder that such a feeling could have occurred to me . . . a great scene was about to unfold within myself. I actually shook and shuddered at what I felt . . . I . . . saw a glorious beauty of space unfold before me, of light, color, and of song and music . . . of a oneness in fellowship, a wanting to belong to this greatness of beauty and goodness that unfolded before my eyes . . . I could see my family handing me great love. . . . I cried, not bitter tears, but tears of beauty and joy. A beautiful organ was playing . . . it seemed as if angels were singing. All of a sudden I was back in eternity . . . Peace and happiness, tranquility . . . My heart was filled with joy that was overwhelming . . . I felt that time was thousands of years ago, thousands of years from now.
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> I felt with every sense of my being that I was in hell. My body grew warmer and warmer, then suddenly burst into fire. . . . I lay there and let my body burn up. . . . All at once, after all the doubts and fears, I knew that I was a mother and that I loved my child . . . the music playing was "The Lord's Prayer". There must have been a short pause in the music but to me it seemed an eternity. I said, "Don't stop it. God is whole in me!" At this point I felt as if God were holding me in His arms and revealing Himself to me. I smiled and said, "I've found Him, I've found Him!" I had such a tremendous sense of peace and well being. After so many years of running alone and afraid, God was now with me.[37]

Drug use is symptomatic of the deep chaos and restlessness of the age.

Thus far, I have tried to show that there is a definite correlation between drugs and contemporary religion for those users who are religiously oriented. I don't believe it would be pushing the issue too far to say that beyond our "religiously oriented" group, drugs also play an important "spiritual" role for those who may not actually be thinking in religious terms. For many, drug use is symptomatic of the deep chaos and restlessness of the age. As an example, I cite a study made by Richard Blum and Associates which broke down into five different groups the motivation of a cross-section of LSD users: 1. The informal professional sample, 2. the experimental subject sample, 3. the therapy patient sample, 4. the informal blackmarket sample, and 5. the religious-medical center sample.[38] While the religious sample was motivated by a quest for self-knowledge, self-expansion and "becoming", at least one of the remaining four groups (the informal black-market) said they had "the desire for aesthetic enhancement coupled with self-enhancement . . . in search for a new euphoric state"[39]

It is also important that we note the particular definitions of religion used and the goals they seek. The underlying concepts are: 1) That God is, at best, a vague force *within* nature. Transcendence, does not infer that one transcends himself outside the system of

the universe—it is more of an identifying with or union with it. 2) That the divine spark is really inside man himself. 3) That self-knowledge and insight are the vehicles for tapping that divine spark (via drugs). 4) That there are really no rules or patterns to this experience of transcendence—it's really your "own thing". One gets a scent of the romantic humanist framework as he 5) relates what is within him to the cosmos or universe which becomes mysteriously personified.

Noting its vast subjective framework, it becomes less difficult to interpret the conglomerated syncretism of many religions with an admixture of each individual's idiosyncrasies. It becomes a tune played against the moods of the past six to ten years within our country.

OUR MOOD . . . THE SEEDBED

I hesitate to directly assign *all* religious drug use to one underlying assumption. Yet, I can't help but think that the chief factor, among others, is our steadily increasing awareness of the significance of living without any foundations or categories. Perhaps Jung laid a good foundation for what I'm about to propose in his work *Modern Man In Search Of A Soul.* Here, he implies that modern man has removed himself from the context of a common unconsciousness and, thus, has become "unhistorical". He is left "without the spiritual moorings necessary to normalcy in mental health."[40] We have lost the sense of spiritual tradition. Perhaps our pragmatic framework is paying off with its just and due dividends. It almost appears that we think of ourselves as the *one* culture in man's history that is immune from the processes of erosion and starvation from within. Perhaps the great experiment has failed and the American dream is about to turn into a nightmare.

Jung writes that man, "has become unhistorical in the deepest sense and has estranged himself from the mass of men who live entirely within the bounds of tradition."[41] Dr. Bruce Harkness, Dean of the College of Arts and Sciences at Kent State University, remarked that we are facing a generation that has no ties with the traditions of the past. As he so aptly put it, "We have a generation that has forgotten Hitler." What he said, I believe, corresponds with what Jung is trying to tell us. Jung continues, "In repudiating the historical context, Western man is marked by the loneliness with its associated meaninglessness; he has cast himself adrift from vital cultural moorings for aimless wandering on the waters of uncertainty."[42]

It would appear that we are in the midst of attempting what Freud advised us: throw off the illusions of religion that we use to cover our impotence and, thus, become vibrant, released persons.[43] It would also seem that we are discovering that while we have the *ability* to "cast it off", we do not have the "potency" to "pull it off." Jules Masserman has picked up Freud's shortcoming at this point. For while he adheres to Freud's view of religion filling the role of illusion he maintains that it is a necessary illusion. Living without the illusion of religion would be, "as excruciatingly unbearable as existing without our skins."[44] Where Freud tells us to be delivered from the illusion, Masserman tells us, "we mortals cannot ordinarily stand unprotected in the blinding, searing light of truth. Without the illusion that religion provides, man would face the hostile world weak and defenseless, unable to withstand its cruel and crushing forces.[45] While we differ as to the nature of revealed religion as "illusion", Masserman has done us a service by laying down one of the most fundamental descriptions of contemporary man.

We will have to show our young people that there are better and more lasting ways to experience the potential, depth, variety, richness, ecstasy and meaning of life than by chemicals.

Jennings wrote,

> Twentieth Century secularists have challenged the soul concept in dealing with the larger question about the reality of the supernatural realm. The consequence of this skepticism by Western man is that he must rely upon himself in the face of apparent impotence. . . . As a segment of Western culture, Americans have called into question the mystical certainties held by western man a few centuries ago and have replaced these verities with the ideals of material security, general welfare, and humaneness. The spiritual heritage has been replaced by scientific and technological materialism. . . . the apotheosis of science or scientism has destroyed the sanctuary of spiritual reality to which we could retreat when confronted with overwhelming circumstances.[46]

Man is left with the thought that our momentary experiences are the only source of any ultimate verity which we may seek; man is left with despair. Francis Schaeffer has written, "It arises from the abandonment of the hope of a unified answer for knowledge and life . . . . Modern man has given up his hope of unity and lives in despair—the despair of no longer thinking what has always been the aspirations of men is at all possible. On the basis of meaning, rationality, and logic, nothing really makes any difference."[47] Michael Green caught the significance of this in reference to the drug addict when he termed him, "the extreme example of twentieth century man more dead than alive."[48] It is this same fundamental proposition of meaninglessness that makes it next to impossible to dialogue with many hard-core users.

It's these twentieth century people who are struggling with the questions of our day. As Schaeffer says, it's the film producers, the jazz musicians, and the hippies who are grinding out today's philosophy. It's against this background of meaninglessness, he says, that drugs are being used. With Leary he writes, "This overwhelming desire for some non-rational experience is responsible for most of the serious use of the drugs LSD and STP at this time. With the sensitive person, drugs are today not usually used for escape. On the contrary, he hopes that by taking them he will experience the reality of something which will give his life some meaning."[50]

Aldous Huxley made a real contribution to this way of thinking. Huxley was looking for an experience that validates itself. This is called a "First Order Experience." This is an experience that takes place above the line of reason and nature. It is the attempt to find meaning from the realm of the irrational. Right up to the moment of his death, Huxley insisted that the means to achieve this mystical first order experience was via drugs.[52] This was his hope—a new religion above and beyond the rational. From what I can make of Huxley, the mind or brain and nervous system stood between

man and his experience of the universe. The brain was a protective development to filter out the overwhelming amount of insignificant trivia and allow man to focus his attention on those things which could be adapted for survival.[53] It is for this reason that one must take the irrational approach and bypass the intellect and logic to return to that state where man may perceive, in depth "God" (*paramatman* or the sum of all things). It is not surprising to discover that Huxley was a follower of Vedantic Hinduism. Perhaps, along the same basic path, Marcuse would say we have to by-pass reason to return to the world of "beauty". We heard it from Leary as he called us back to original ecstasy through LSD. It's all the same thing. It is a call to return to man's early state from which the beginnings of his religious feelings stem and from which they have evolved. In either case the results are the same and the elements are far from foreign to any committed drug-user.

SUMMARY

It has been the purpose of this paper to point out the inter-relationship between certain hallucinogenic drugs and religion. In addition we have attempted to establish a reasonable cause—or seedbed—from which our phenomena have spread. It would be my greatest pleasure to be able to present a list of "instant" answers and corrections but I'm not at all certain how I'd go about it. I should guess that we will have to show our young people that there are better and more lasting ways to experience the potential, depth, variety, richness, ecstasy and meaning of life than by chemicals. While we possess the Answer, perhaps the results will continue to be tragic and heartbreaking. For while drug use is leading our people through a premature hell, the phenomena of its impact only serve to remind us that man cannot live by bread alone. And if we cannot be culturally, intellectually, and ecstatically sensitive enough to give the whole "bread of life", I'm quite certain that our people will pass us by in search of a few crumbs to placate their hunger.

APPENDIX

A Brief Relation Of Pertinent Drug Phenomena To Hinduism And Buddhism

Hinduism teaches that beyond the world is the *brahmanatman* which is something of a god.. The *brahmanatman* is all that really exists because the world of time and space is *maya*—the temporal which has no meaning. Everything that lives and breaths is called an *atman*, or a soul, which, while in *maya*, strives to return to the *paramatman* (world-soul).

The only way that the *atman* can return to the *paramatman* is by reincarnation—a release of the soul. When the *atman* has lost itself and identity in the *paramatman* it is said to have reached the state of *nirvana*. This has some striking features with which the contemporary religiously oriented drug user identifies:

1. In his intense search for a subjective irrational experience, the drug user has an instant method of yoga, the hallucinogen, by which he can escape the *maya* to become part of the *paramatman* of the universe. He can possess an instant *nirvana*.

2. Hinduism teaches that the world is of no value and that reality is something you can glimpse only through intense discipline and meditation—a chief characteristic of the drop-out.

3. Vedanta, a syncretistic form of Hinduism, says that the creator god, Brahman, incarnated himself in humanity many times—Christ, Buddah, Krishna, and many others. These incarnations are called *avatars*—a form of "super-savior." (A recent folk-opera, *Jesus Christ, Superstar*, has great similarity at this point. He is pictured in the script as the superstar because he spoke of love and forgiveness and was an example of these qualities in action.) I have noticed a very interesting factor among many of the committed users with whom I come in contact. They are very interested in Jesus Christ, as was expressed in a very popular song "Spirit In The Sky". However, they have never, to my knowledge, assigned to him any greater role than that of an *avatar—one* of the leaders.

4. The followers of Vedanta believe that the most recent incarnation of Brahman was that of Ramakrishna who is said to have practiced Hinduism, Christianity, and Islam and received a vision of God through each. Krishna would often say, "Many faiths are but different paths leading to the one reality, God."[54]

It is of some interest to note that one of George Harrison's recent songs speaks of "Lord, I really want to love you" while in the background the vocal group chant "Krishna, Krishna."

In addition, Vendanta perhaps helps to explain the presence of such extreme syncretism amidst many of the hippies' Eastern faiths. For further study, observe the development of the Bahai faith.

5. The Vedantic creed states, "we reject none, neither atheist, monist, polytheist, agnostic, or theist . . . . we do not insist upon particular codes of morality. . . . Each of us is welcome to his own peculiarity. . ."[55] There is a noticeable correlation here with the user's preoccupation or practice of the "New Morality" as was pointed out by Bloomquist.

6. The final factor that closely correlates with the user's concept of God, is the fact that while a big case is made for the union with the impersonal god, Brahman, the real search for this experience takes place within the the individual for that, it appears, is where the real divine aspect is found. Likewise, for the Hindu, man is God.[56] This directly substantiates all that Leary has written about religion and the attempt to find God thru intense experience of ecstasy within oneself.

Zen Buddhism has not until recently, under the influence of the rise of Eastern religious orientation within contemporary music and culture, been reckoned with by the Christian Church in the United States. As Walter Martin points out, it has largely been associated with the Beat/Hippies cultures for whom it has served as a pseudo religio-philosophic platform[57] It carries with it certain irrational and pantheistic tendencies, that are making it increasingly appealing to this generation. (See Schaeffer's discussion of the significance of Pantheism in contemporary thought.[58])

Gautama Buddha wandered for seven years before he found "the true path" under the legendary tree and then experienced *nirvana*. Zen Buddhism picks up at this point and says that the experience of *nirvana* is not so exclusive as was previously implied and that it does not involve countless reincarnations. It is something that any mediator can experience *now*. As Martin relates, "With the true Zenist, teachings of the Buddha place man within the tensions of the eternal now and reality becomes timeless."[59] Man will find this only if he *acts* instinctively in the 'now.' "The snap of the finger can be a lesson . . . . indicating that the very moment is the immediate experience of reality, past time—embracing all dimensions."[60]

Based upon the individual's instinctive-meditative experience with the eternal moment, reality is not something that is objective and possesses correlative truth. It becomes subjective, egocentric, and reflective. As Barrett concludes, "Zen is the most irrational and inconceivable thing in the world . . . not subject to logical analysis or to intellectual treatment. It must be directly and personally experienced by each of us in his inner spirit."[61] It is a world of no antithesis.

Consequently, Zen is an approach that laughs at all attempts to dogmatize. What is real within *your* mind is what represents the truth for you. Susuki wrote, "Absolute faith is placed in man's own inner being . . . Zen wants to live from within, not bound by rules, but by creating one's own rules."[62] Hence, there is no need for formal morality.

Another interesting factor that Zen shares in common

with the religiously oriented drug user is that it seeks a *Satori* or enlightenment experience which is an awareness of man's original inseparability with the universe. The foundation of Zen's philosophy is that God and the individual are *one* in the *now-act* of perceiving Him.

It is not by accident that every point mentioned above: the *now* orientation, the reflective-meditative experience-oriented subjectivism, the rejection of authoritative rules and espousal of finding "your own thing" in morality, and the intense goal to be at one with God and the universe through an introverted mystical experience, correspond, point by point, with the summary of religious phenomena oriented to the drug user.

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Heroin Addiction: Teen Challenge vs. Transactional Analysis: A Statistical Study

G. ARCHIE JOHNSTON
California State College
Dominguez Hills, California 90747

Heroin addiction was viewed from the standpoint of treatment outcome. Seventeen subjects were randomly assigned to each of three treatment regimes: No Treatment (NT), Teen Challenge (TC), or Transactional Analysis (TA), with the subjects in the last two groups being under treatment 6 to 12 months. The purpose of the experiment was to determine whether these approaches had a differential effect on heroin addiction. A score on a standardized questionnaire and recidivism (returning to heroin) rates, measured over a 29 month period, were used as an index of the effectiveness of each treatment. Both TC and TA treatments were statistically significant over NT. While the TC subjects displayed a lower score on the questionnaire, and therefore less drug addiction identification during this period and as measured by the index, TA had a one-hundred percent lower recidivism rate suggesting that TA may get at the etiology and root causes which allowed the addict to become addicted with slower, but longer-lasting effectiveness.

Introduction

Seevers (1962) has suggested that addiction is characterized by an (a) overpowering desire to continue to take the drug, (b) a tendency to increase the dosage, (c) psychological and physiological dependence on the drug, and (d) detrimental effects both to society and the individual. Addiction differs from drug habituation, for in habituation there is (a) a desire but not a compulsion to continue taking drugs, (b) little tendency to increase the dosage, (c) some psychological but no physiological dependency, and (d) any detrimental consequences primarily affect the individual.

Lieberman (1967) in his discussion on current trends in rehabilitation of drug addicts, adheres to the belief that an outmoded typology of treatment has employed punitive and medical-psychiatric methods, which to some have been viewed as a gross failure (O'Donnell, 1964). Lieberman (1967) suggests that five *themes* of rehabilitation have emerged over the last decades: (1) communal, resembling the homogeneity of the folk culture with strong roots in face-to-face interaction; (2) community interaction, involving the interaction of the addict with his given community; (3) religious, providing an intense religious experience for those willing to be saved, who are then expected to return to the community and become involved in the salvation of other addicts (Wilkerson, 1963; Teen Challenge, Inc.); (4) rational authority, placing the addict on probation, if convicted of a crime, rather than send him to prison; and (5) chemotherapy, such as cyclazocine or methadone maintenance (Jaffe, 1966; Dole and Nyswander, 1965). Lieberman (1967) in conclusion admonishes us of the need for combined approaches and selectivity in treatment.

The present author is concerned with out-come research in heroin addiction. He has elected to study two approaches: Teen Challenge (TC) and Transactional Analysis (TA). The purpose of the experiment is to determine whether one of these approaches has a differential effect on the treatment of heroin addicts.

Therapeutic Techniques

Redlich and Freeman (1966) suggest that conventional therapeutic techniques, strictly speaking, refer to biological and psychosocial methods of treatment based on scientific evidence, which by definition excludes unscientific beliefs, magic, supernatural forces, and commonsense. These two authors suggest a classification of therapies based on phenomenological description of treatment or on a differentiation of underlying principles and theories. The most fundamental differences can be seen between: (1) somatic therapies, involving organic and biological therapies employing various chemicals and hormones; and (2) psychosocial therapies which use verbal, symbolic and behavioral methods that influence the total behavior of the patient and his social performance. The technique must be based on some scientific rationale. The psychotherapies can be divided into analytic-insight, directive-suppressive, and behavior-modification.The two authors believe "all therapies involve support and direction as well as learning." The behavior therapies are usually individualized involving a relationship in which conditioning theory and techniques are employed. The psychotherapies may be fuller subdivided into individual and group, with the latter including milieu and communal. The authors warn: "habits that are learned can be unlearned, or at least not employed. Psychotherapists should not lose sight of the fact that there are many human problems that are determined by economic, social, cultural, and legal processes, which essentially are not accessible to psychotherapy."

James (1959) distinguishes between two types of conversions. The first he calls "volitional" conversion, where the change is on a predominantly conscious and rational or intellectual level. Calverton (1934) labels this type of conversion "the logical" or "intellectual" approach to religion. The second type of conversion James (1958) mentions is the "self-surrender" where the personal will must be abandoned. The conscious aspects of conversion according to James (1958) are predominantly two things: first, there is a feeling of incompleteness and wrongness ("sin"), and second, an imagined ideal that is desired for the self. Basically, these are not so different from the self-concept (a desire to be whole and good) and the concept of the ego-ideal. Interestingly enough, the sense of incompleteness according to Calverton (1934) did not exist in the group-centered society but is a dominant characteristic of the individualistic centered society.

Knight (1969) believes that:

> The religious area appeals to youth as a medium for orienting themselves, and their involvement in this area often reflects their attempt to establish themselves as individuals with their own identity and personal set of values. The adolescent, as a part of his movement toward independence, feels constrained to examine, challenge and reconstruct the religious beliefs given him by his family.

Teen Challenge

Teen Challenge uses the Christian conversion as a pivot point for their milieu therapy. A leading evangelical authority on conversion has said (Graham, 1965):

> The word "conversion" means simple "turning." God pleads with man to return to Him. However, it is impossible for man to return to God, to repent, or even believe, without God's help. All one can do is call upon God to "turn one" to Him. There are at least two elements in conversion—repentance and faith. Repentance carries a recognition of sin involving personal guilt and defilement before God. Repentance means also a change of feeling. This means genuine sorrow for sins committed against God. Faith is not just hanging on. It is laying hold of Christ, for Christ is the object of faith. It is not a subjective feeling, but an objective act.

The purpose of the experiment is to determine whether one of these approaches (Teen Challenge and Transactional Analysis) has a differential effect on the treatment of heroin addicts.

James (1958) believes "we tend to speak of the conversion phenomenon, and wonder at it as a transformation." However, for the many members of TC, most of whom have been in jail or prison, the traditional psychotherapies of the social and insight orientation have seldom provided any real freedom from drug usage. What does seem to work for TC members is their confrontation with Christ in their individual conversion. This conversion together with their daily group process of Bible study, prayer, song and working on the streets, in schools and half way houses with other addicts is said to aid the addict on this program to become drug free and a useful member of society. One youth put it this way:

> A 19 year old parolee, dope fiend, factory worker does not make ripples. I did not have any worth. Today, I am free and clean. This freedom is in Christ. It is a freedom with a purpose—to help someone else be set free.

Lieberman (1967) believes TC members, like missionaries, devote their lives to carrying out their religious theme. He asserts that TC has many of the same elements as Alcoholics Anonymous with their missionary zeal in helping the suffering addicts. Lieberman (1967) was "impressed by the appearent power of the conversion in effecting a profound involvement with a new and more socially acceptable style of life."

Transactional Analysis

Transactional Analysis according to Harris (1969) is both a teaching and learning device. He suggests that TA works at its best in groups where the more transaction to analysis the better the interaction. It distinguishes three active elements in each person's make-up: the parent, the adult, and the child. The parent personifies the "don'ts" and a few "do's." The child represents spontaneous emotion. Both parent and child must keep in proper relationship to the adult whose function is that of a "reality computer that grinds out decisions based on the data derived from experience." The goal of TA is strengthening and emancipation of the adult from the "archive recordings in the parent and child to make possible freedom of choice and the creation of new options." Harris (1969) explains there are four life positions underlying people's behavior:

> (1) I'M NOT OK–YOU'RE OK, which is the anxious dependency of the immature.
> (2) I'M NOT OK–YOU'RE NOT OK, showing the "giver-up" or despair position.
> (3) I'M OK–YOU'RE NOT OK, indicating the criminal position.
> (4) I'M OK–YOU'RE OK, which is the response of the mature adult, at peace with himself and others.

Harris (1969) concludes that most people still operate unconsciously from the position I'M NOT OK–YOU'RE OK.

Berne (1969), the founder of TA, adheres to the position that TA is not a restatement of Freudian, Jungian, or other psychology. Superego, ego, and id are concepts, whereas ego states used in TA are experiential and behavioral realities. Berne (1969) suggests that TA uses only five words in its vocabulary. It will be advantageous to look at several more words to fully comprehend the meaning of TA and the procedure involved. The following are those words which need a working definition supplied by the founder of TA (Berne, 1969):

> *Transaction*: A transaction stimulus plus a transaction response. In a complementary transaction, the vectors are parallel. In a crossed transaction they are crossed. An ulterior transaction is effective at two levels, the social and the psychological. An ulterior transaction may be angular involving three ego states, or duplex involving four.
> *Structural Analysis*: Analysis of the personality into its constituent parent, adult, and child ego states.
> *Game*: A series of ulterior transactions with a gimmick, leading to a well-defined pay off.
> *Script*: An unconscious life plan. In some cases it may be preconscious or conscious.
> *Ego State*: A consistent pattern of feeling and experience directly related to a corresponding consistent pattern of behavior.
> *Parent*: An ego state borrowed from a parental figure. It may exert itself as an indirect influence; or be directly exhibited in parental behavior.
> *Adult*: An ego state oriented toward objective, autonomous data.
> *Child*: An ego state which is an archaic relic from an early significant period of life. The adopted child is influenced by parental parameters. The expressive child is more autonomous.

In view of the above the meaning of Transactional Analysis should now become clearer:

> *Transactional Analysis*: 1. A system of psychotherapy based on the analysis of transactions and chains of transactions as they actually occur during treatment sessions. Its principal phases are structural analysis, transactional analysis proper, game analysis, and script analysis. 2. A theory of personality based on the study of specific ego states. 3. A theory of social action based on rigorous analysis of transactions into an exhaustive but finite number of classes based on the specific ego state involved. 4. The analysis of single transactions by means of transactional diagrams. This is transactional analysis proper.

Harris (1969) suggests how TA group treatment is conducted. The transaction consists of a stimulus by one person and a response by another, which response in turn becomes a new stimulus for the other person to respond to. The purpose of the analysis is to discover which part of each person–parent, adult, or child–is originating each stimulus and response. There are many clues to help identify stimulus and responses as parent, adult or child, and with these clues to assist one to begin to identify parent, adult, and child in transactions involving the individual and others.

Although the concepts of the therapeutic community operate to a lesser degree in the TC program because of the lack of funds, than with the TA program, these concepts are important to the author's thesis. The environment at both the TC center and the federal institution provides a 24-hours-a-day therapeutic community.

Jones (1968) has described the therapeutic community treatment as sociotherapy and a living-learning situation where confrontation with other group members is concerned with everyday behavior. Each individual is helped to become more aware of the thinking and feeling of others–often for the first time–and this can contribute to personal growth.

While those subjects on the TC program do not have any conventional therapy sessions, and are even somewhat opposed and outspoken against it, they do have group rap sessions, prayer, Bible study, and they do work with other addicts, all of which is not on video tape, but apparently somewhat successful. Those heroin addicts on the TA program receive group treatment and interaction, video tape replay of the TA sessions, some vocational training, and are aided by "linkers" who are themselves former-addicts going between the authoritarian structure (warden, program directors, employers) and other resident addicts.

Based on the lower questionnaire score when compared to no treatment and the lower recidivism rates, Transactional Analysis is the best regime of treatment for heroin addiction of the three treatments investigated.

Method

Subjects:

The present author employed the term "selectively-admitted" into any one of the following treatment groups to mean: (1) that the individual addict wanted and asked for treatment from either the court or from the program, and (2) that the court or the director or the program was convinced that the addict did desire and could benefit from the form of treatment being given. Once selectively-admitted into one of the two treatment groups or placed on the waiting list forming the no treatment group, the individual was then part of one of three treatment populations from which the author drew his three randomly assigned samples. This was accomplished, for each group, by taking every fifth questionnaire and recording that individual score and entering it into the sample. No one subject was used in more than one treatment condition.

No treatment: Seventeen, heroin-addicted males made up this group. All of these had an arrest record, and all but six had been convicted and sentenced to jail or prison for crimes ranging from assault/robbery (11 years in prison) to narcotics sales smuggling. One subject with a history of 12 narcotics offences had spent four years in prison. None were in prison at this time. Their ages ranged from 18-44. These subjects who were still taking heroin were randomly assigned to this group from a waiting list prior to any therapy and prior admission to the selectively-admitted TC program.

Teen challenge: The all-heroin-addicted subjects for this group were randomly assigned and consisted of 17 males selectively admitted into this program. All had arrest records and two-thirds had been convicted of a crime, with the remainder having been placed on

probation. Their ages ranged from 18-43. They had been under the "treatment" from 6-12 months living in a therapeutic community.

Transactional Analysis: This heroin-addicted group consisted of 17 male inmates of a specially funded congressional program at the Federal Correctional Institution at Terminal Island where they lived in a therapeutic community. Each inmate had been selectively admitted and sentenced, after his court case had been given careful consideration and after the inmate had asked to be placed on this program falling under the Narcotics Addiction Rehabilitation Act (NARA) of 1966. Each inmate had met the qualification of admission to the NARA program in being a heroin user, and having an arrest record directly or indirectly linked to such usage. The subjects had been under treatment 6-12 months and their ages ranged from 21 to 36 years.

Measurements

In a former study (Johnston, Midtlyng, and Ell, 1970) the author and his colleagues created a drug addiction questionnaire which was an instrument to predict whether or not the drug-user would become a drug addict. The score based on that test and recidivism rates became the dependent variables for the present author's study. Each subject was asked to respond to each of the 20 questions in the test with a "yes" or "no" response. One (1) point was assigned to each "yes" response and a score of zero (0) for each "no" response, the test being designed so that a "yes" response indicated drug usage. Those receiving 11 or above were considered drug addicts. From this process it is obvious that the higher the score, out of a total of 20 points possible, the more apparent the addiction involvement.

There were two groups used in normalizing the questionnaire: 96 drug users from among the drug subculture cities of Southern California and 100 heroin addicts under TA group treatment at the Federal Correctional Institute at Terminal Island. (The results for the drug users were: A split-half correlation of .72, a mean of 3.84, the standard deviation of 4.00, standard error of the mean of .40, and a Kuder-Richardson of .81. The last correlation indicates a fairly high degree of homogeneity (Cronbach, 1951). The heroin addict group had a split-half correlation of .51, with a standard deviation of 4.30 and a standard error of the mean of .44.)

Because of the transitory nature of the drug users group, the authors were unable to secure a test-retest reliability. In view of this and of the fact that drugs were believed generally unavailable, it was decided to employ the heroin addicts group for the test-retest reliability (r=.35) even though they were under TA group treatment. The 8-10 week test-retest reliability was surprising, for three-fifths of the heroin addicts answered the questionnaire lower and this was believed to be due to the effects of the TA treatment method being used. These findings also provided the hypothesis for the author's present study.

Procedure

In each treatment condition except no treatment, the author relied on raters who were members of the program being studied to obtain his questionnaire results. Since he entered two on-going groups, he was unable to follow and report on the subjects from day one to the end of the experiment. The methods of treatment have been explained above. In addition to the therapeutic community process of living-learning, each addict, except those in the no treatment group, were under TC group "rap" sessions or transactional analysis for two one-and-a-half hour sessions twice a week. Sometime between the individual's 6th and 12th month of therapy the author obtained his questionnaire results and these were combined with the recidivism rates (returning to heroin) as shown by the records from each treatment condition to make up the two dependent variables. The no treatment group was also given the same questionnaire and the comparative results for all three groups follow.

Results

Duncan-Range Test:

Groups	TC	TA	NT
Ranked Means	2.18	8.82	14.53
n	17	17	17
Recidivism Rates (29 months)	32%	16%	none

Difference between groups 1 and 3	6.64	(R_2=2.83)*
Difference between groups 1 and 2	5.71	(R_3=2.98)*
Difference between groups 2 and 3	12.35	(R_3=2.98)*

*Significant at .05 level

The Duncan-Range test for two and three groups with 48 degrees of freedom was statistically significant for all three groups. The data as measured by the

Would You Give This Woman an Abortion?

Case 1

The June 1973 *issue of the* Journal ASA *carried several articles on a Christian perspective on abortion. These reflected the general trend among Christians to vary over a wide spectrum. It is this difference in opinion that makes the practical decision a matter of personal involvement—and a problem not always so easily solved by simple formula. In this issue we offer some test cases so that you may have the opportunity to make a personal evaluation and to compare your conclusions with those of other informed Christians.*

Mrs. B. is a 27-year old woman who has had four pregnancies. The first baby was still born, being grossly abnormal: a hydrocephalic. The second child, now aged 6 years, suffers from a blood disease and has to go into hospital at frequent intervals for blood transfusion. Her third child has a spina bifida and the fourth child is spastic, now aged 18 months who is unable to control his bowels. Her husband is a clerk and has been preparing for professional examinations, but has had to abandon these in order to help his wife with the family. It is now 5 weeks since her last period and she finds she cannot face the 8 months of waiting, wondering if the child is going to be normal. In addition she fears that she will be unable to cope with another baby in view of her present commitments.

For other test cases see pages 112, 115, 118, 121, *and* 124.
For the opinions of other Christians see page 127.

All of this material is reprinted from Abortion: The Personal Dilemma *by R.F.R. Gardner, Wm. B. Eerdmans Publishing Co., Grand Rapids, Michigan* (1972). *Used by permission.*

It is hoped that some consideration could be given to the incorporation of some psychotherapy, such as Transactional Analysis, into the Teen Challenge program.

criterion, that is the questionnaire results and recidivism rates, give unequivocal support for three findings. First, that TC is an effective program of treatment. Second, TA is a very effective method of treatment. And third, based on the lower questionnaire score when compared to no treatment and the lower recidivism rates, TA is the best regime of treatment for heroin addiction of the three treatments investigated. However, TA is one-hundred per cent lower in recidivism rate, over a 29 month period, than that of TC. Recidivism rates, computed from the TC and TA records and being defined as again returning to drugs, are for TC and TA programs 32% (American Magazine, 1968) and 16% respectively.

Discussion

The results of the TC and TA programs both seem to be effective and offer hope to the addict and the mental health worker. While it is true that the TC program seems to help the addict increase his self-awareness, it is also true that the approach deals with heroin and other addictions in a repressive manner, i.e., the motivation of the addict had been changed because of his conversion to Christ whom he accepts as his Lord and Master and accordingly views drug-taking as sin. It appears that dealing with heroin addiction in this manner masks the symptoms and etiology, and in doing so does not get at the real causes which led up to the addict becoming addicted to heroin or other drugs. Thus, the addict's belief in Christ, even though sincere and real, becomes a drug substitution which often never grows beyond that little spark of embryonic faith.

From the recidivism rates over the 29 months and the fact that these men on the TA program are successful even after parole, it would suggest that TA operates at a deeper level of the basic personality structure, permitting greater adjustment without drugs as it changes the addiction concept of the self-image more thoroughly and at a slower pace, perhaps accounting for the lower recidivism rates.

Looking at the TC group scores, it seems likely that the approach changes the addiction concept in the addict's self-image rapidly at the point of his conversion, this change being based upon his faith in Christ. It is this continuous and literal working-faith and the "love of Christ which controls" him. However, this suggests too that if the addict does not fervently keep active in the TC program or a church, he may encounter a personal loss of faith—even momentarily—which could result in his returning to drug-usage. It seems possible, at least for part of the 32% counted in the TC recidivism rate, that the cure is encased in the legal contractual language—a promise for a promise, "if you will—then I will," i.e., if the addict will be good in responding to the wishes of his heavenly Father, then his cure from addiction is continued. Addicts often have had a rather poor relationship with their earthly fathers. These negative feelings which come about as the result of the poor interpersonal relationship between father and addict could very well be carried over into the matter of their faith in Christ. This loss of faith would occur because the addict had only had a change of environment, conversion, undergone detoxification, and was now beginning to feel better because of regular hours and eating habits, but the root causes which allowed that individual addict to become addicted in the first place had not been acted upon in psychotherapy. This could account for the higher recidivism rates.

Based upon this study, the author suggests there is a real danger in TC's belief in the individual loss of salvation and the great emphasis on works in lieu of psychotherapy, and he would hope some consideration could be given to the incorporation of some psychotherapy, such as TA, into their program. This step hopefully would decrease the recidivism rate and allow some individuals who are at present returning to drugs become in the future drug-free and a useful member of society.

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Galileo and the Church: Tensions with a Message for Today Part III

T. H. LEITH

Atkinson College, York University
Toronto, Ontario, Canada

Galileo (1564-1642)

In 1609, the year when Kepler's elliptical orbits were presented to the public, Galileo Galilei was a respected but rather obscure professor in Padua actively seeking, after 17 years in the post an improvement in his position. In that summer he first heard of a Dutch device being exhibited there (it was likely modelled upon an Italian instrument of 1590 about which he had been equally uninformed) and in haste experimented until he had discovered its secret. Constructing a telescope of some ten diameters magnification he proceeded to employ it both intensively for astronomical purposes and to help him secure the position of Chief Mathematician at the University of Pisa (though he agreed that this would be without teaching duties and that he would not settle there) and Philosopher to Cosimo Medici, the Duke of Tuscany, in Florence. This move from Padua, under the protection of the independent Venetian state, he was later to regret for it probably placed him more readily into the hands of the Inquisition.

In 1597, on receiving a copy of the *Cosmographic Mystery*, Galileo had informed Kepler that "many years ago I became a convert to the Copernican theory". In 1610 his little book on his telescopic studies, the *Sidereal Message* first publicly announced his position. It contained evidence of irregularities on the Moon, thus denying the traditional perfection of the heavenly bodies; evidence of many previously invisible stars, indicating that the import of the heavens could scarcely rest upon what the naked eye had observed throughout history; evidence of a lack of noticeable stellar magnification which suggested that the stars were farther away than indicated by past opinion; and evidence of the presence of moons orbiting Jupiter, which discredited the uniqueness of the Earth and strengthened the possibility that it orbited the Sun among the other planets. Later, in 1613, the Academy of the Lynx-eyed in Rome and of which he was a member, published his discoveries at Florence of the phases of Venus, which demonstrated its movement about the Sun, and of sunspots, which suggested imperfections on that body and whose paths also indicated its rotation.

None of these, however, was difficult to reconcile with a Tychonic model as his friends among the Jesuits at once recognized. But Galileo refused to countenance that. Then, between 1613 and 1615, Galileo wrote a series of letters attempting to show that the Bible could be interpreted in a Copernican manner. This evoked speedy reaction because it was his first clear challenge to traditional Biblical scholarship. Why did he take this risky step? Partly, it would seem, from a desire to see the church firmly supportive of the new truths about the world revealed to the careful observer. Partly it was because of his firm conviction that he was right in calling for a new foundation to the philosophy of nature, one with a Copernican outlook and one based upon a proper physics and the quantitative method on which he had been laboring for many years.

Galileo is sometimes seen as a scientist challenging the authority or correctness of Scripture. He was nothing of the kind for he never questioned the harmony of God's revelation in nature and in the Bible; what he did doubt, like Kepler, was the correctness of certain interpretations of what the Bible meant, expounded when other world views and astronomical attitudes were still plausible, and the propriety in many cases of reading any technical meaning into it at all. What was disconcerting to his opponents was the basic attitude toward the Bible and the Church which lay behind this, for it seemed to imply that Biblical teaching was never competent to challenge science and it eroded the authority of the church in matters of Biblical interpretation. If Galileo plead that there could be no

The year of 1973 *has been designated Copernican Year in honor of the 500th anniversary of the birth of Copernicus in* 1473. *In keeping with this commemoration, the* Journal ASA *offers a four-part publication of a paper presented by T. H. Leith at the* 1972 *Convention of the American Scientific Affiliation at York University. Part I appeared in* Journal ASA 25, 21-24, *March* 1973. *Part II appeared in* Journal ASA 25, 64-66, *June,* 1973.

Would You Give This Woman an Abortion?

Case 2

(*See page* 109)

Mrs. G., aged 30 years, has been a widow for the last 6 years, her husband having been killed in a motor accident. In the month after her husband had been killed she had an endogenous depression and required electric convulsive therapy in a mental hospital. She was an in-patient for 2 months. She has not required treatment since. She has 2 children, aged 9 and 7 years. For the last three years she has been keeping company with a bachelor. Marriage has occasionally been suggested, but he has never been prepared to discuss a date. Recently they have started to have intercourse. She has not taken precautions, and now finds herself to be 10 weeks pregnant. On questioning she admits that subconsciously she may have hoped to be pregnant in order to persuade him into marriage. In actual fact, he has dropped the courtship completely since she told him of her pregnancy. On examination the pregnancy is confirmed. It is difficult to elicit her history, and she appears rather withdrawn. She burst into tears on several occasions during the interview.

For other test cases see pages 109, 115, 118, 121, *and* 124.

For the opinions of other Christians see page 127.

conflict between well-founded science and the non- (or pre-) scientific language of Scripture, they could reply that no science was so secure as to be beyond question and that, as a scientist, he was incompetent to judge whether passages long used to defend the immobility of the Earth were, in the Hebrew, technical or not. If Galileo wished to tell the Church how to interpret Scripture simply to fit what he took to be a solidly-corroborated scientific doctrine, they could argue that this took ultimate authority from the Church and placed it in the hands of an individual, an approach suited to heretical Protestantism and anathema to the position so clearly taken in reaction by the Council of Trent.

The Dominicans of course saw an additional danger in Galileo's thinking for they were consistently Aristotelian in their natural philosophy. Galileo had, with his espousal of a new physics and of Copernican doctrine, hurled the gauntlet in their direction. From their perspective Galileo was upsetting the entire world order and in particular he was challenging the real synthesis between the Christian faith and Aristotelian philosophy so firmly established since the time of Thomas Aquinas. To the Jesuit followers of Tycho, Galileo also seemed to be making claims for the truth of Copernican doctrine which were unjustified and to be asking the church, of which they were the defenders, to make major concessions on a flimsy scientific basis.

Before long Galileo was hearing from Rome. In the early months of 1615 Cardinal Barberini cautioned Galileo, through a friend, to treat Copernican ideas as fictions. The head of the Jesuit College, Cardinal Bellarmine, a month later was also offering his opinion. In response to a small book by a Carmelite priest, Foscarini, favoring a reconciliation of Biblical interpretation to Copernican ideas, he wrote the author a letter making three points. The first was that the affirmation of the truth of Copernicanism would irritate theologians and Aristotelians, injure the holy faith, and make Scripture false. Secondly, the church, after the Council of Trent had prohibited Biblical exposition which was contrary to the common agreement of the church fathers, could hardly support giving to certain portions of the Bible a sense contrary to that found in its earlier teachers and to all modern scholarship; indeed, a denial of what the church believes to be the clear meaning of Biblical revelation is heresy. Finally, the church would revise its interpretations only if and when the Copernican theory was proven. Within weeks Galileo saw the letter and within months he was in Rome to do battle.

But as the Tuscan ambassador put it,

> this is not the place to come arguing about the Moon, nor in this age, to defend or introduce any novel doctrine.

And, as a friend of Galileo had remarked,

> if new things are introduced . . . someone amplifies, another alters . . . Your ideas about the . . . bright and dark areas of the Moon introduce an analogy between that body and the Earth, someone amplifies this to suggest that you are putting people on the Moon, the next person begins to ask how these can be descended from Adam and how they might have come off Noah's ark.

The Church had, of course, a convenient way out, for Galileo has as yet offered no demonstration of the Earth's motion not subject to alternative interpretation. Galileo now essayed to provide one, his notorious argument from the tides which appears to violate his own physics and to be quite incorrect.

It is unlikely that even had it been valid it would have had much effect under the circumstances. The theologians, asked by the Holy Office for an opinion on the merit of the heliocentric doctrine, never considered it and thus took no thought for revising traditional Biblical exegesis. Instead, they judged the idea that the Sun was central in the universe and immobile to be philosophically absurd and formally heretical. The thesis that the Earth had a daily and annual motion, and that it was not central in the cosmos, they declared to be incorrect in philosophy and erroneous in theology. Within days, and less than three weeks after Galileo's arrival in Rome, the Congregation of the Index prohibited all Copernican writings. The Copernican revolution ended, it seemed, for church officialdom in March of 1616.

The Pope now instructed Cardinal Bellarmine to inform Galileo that the belief that the Earth moves about a stationary and central Sun was unscriptural and thus could not be defended or held. If Galileo refused to abandon his error he was also to be told that he could not even teach the Copernican scheme. A long debate has centered around whether Galileo did, in fact, refuse. A purported minute of the meeting indicates that he had received the prohibition, while a letter from Bellarmine to Galileo is quite clear that Galileo had not abjured any opinion on the matter. In any event, Galileo appeared to be defeated for he could no longer defend the doctrine in which he so firmly believed.

Galileo was publicly silent for several years after the disturbing events of 1616 but his private opinion was likely that which he expressed sometime later.

> Can anyone question that, when minds given their freedom by God are placed in abject submission to the will of others, serious unrest will follow? When we are instructed to reject our senses and place them under

> the fancies of others? When total incompetents are permitted to judge experts and handle them as they wish? It is these novelties which may well result in ruining commonwealths and subverting the state.

Melanchthon would have been astounded at that final twist! To acquaintances he could be subtly ironic, commenting that he understood how necessary it was to accept the decisions of his superiors, of those led by a higher knowledge than this poor mind could achieve, and then asking them to read his works as poetry or a dream because "I esteem somewhat this vanity of mine."

In 1623 the Academy of the Lynx-Eyed published a brilliant essay on scientific method, entitled *The Assayer*, and dedicated to Urban VIII the former Cardinal Barberini[14]. Hearing of Urban's favorable response, Galileo travelled to Rome the following spring to see if he could obtain from the Pope greater freedom to discuss his Copernican thesis. He was told to go ahead but to treat it only as a useful hypothesis because God need not do things in the way which we imagine. Now 60, Galileo began the preparation of his *Dialogue Concerning the Two Chief World Systems*[15] and completed it early in 1630, some six years later. It came from the press in 1632 and was soon suppressed after an ecclesiastical commission, activated by Galileo's opponents, reported that it was really a defence of Copernican doctrine. Its author was called to Rome, charged with violating the injunction of 1616.

Galileo's defence lay in Bellarmine's letter, and the Pope's conversations, allowing him freedom to discuss the doctrine. His opponents brought forward the purported minute indicating that he had been restricted more severely. Galileo replied that he could recall no restraint on his discussing Copernican ideas and that the *Dialogue* was not a defence of these ideas but instead treated them as hypothesis. However, even if his first plea might be successful the second could hardly be taken as credible. After all, the *Dialogue* was clearly intended to be a convincing argument for a new world-view and it was aimed at converting the intelligent reader, by reporting the wonders to be learned from nature, to a revision of traditional outlooks. As a result he was found suspect of heresy, required to abjure sincerely and to curse and to detest what the church considered to be error and unscriptural, and sentenced to house arrest for an unstated term. He was still under this formal imprisonment at his death in 1642[16].

(To be concluded)

FOOTNOTES

[14]This and other shorter writings by Galileo are to be found in *Discoveries and Opinions of Galileo*, S. Drake (ed.), New York, 1957. See also the review of this by E. Rosen in *Journal of the History of Ideas*, 1957, pp. 439-448.

[15]*Dialogue Concerning the Two Chief World Systems*, Berkeley, 1953 or *Dialogue on the Great World Systems*, Chicago, 1953.

[16]Galileo's methods, life and trial are discussed in *Galileo Galilei*, L. Geymonat, New York, 1965; *Galileo Re-Appraised*, C. L. Golino, Berkeley, 1966; *La Revolution Astronomique*, A. Koyre, Paris 1961; *The Crime of Galileo*, G. de Santillana, Chicago, 1955; *Galileo Galilei*, R. J. Seager, Oxford, 1966; *Galileo, Man of Science*, E. McMullin (ed), New York, 1967; *Galileo, Science and the Church*, J. J. Langford, Ann Arbor, 1971; *Galileo Studies*, S. Drake, Ann Arbor, 1970; *Etudes Galileennes*, A. Koyre, Paris, 1966; *Metaphysics and measurement*, A. Koyre, London, 1968; and *La Philosophie Naturelle de Galilee*, M. Clavelin, Paris, 1968.

Those factors in Greek philosophy that hampered the development of experimental science are not present in the Bible; the craftsman is honored and therefore so too is manual work; nature is not set above human art as both have been "created;" matter is not inferior, but a creature of God; leisure is not superior to work. The God of Israel did not retire into the way of being proper to Him, nor is He absorbed in self-contemplation. On the contrary, He is active; "He works hitherto" in a continual creation and He directs the history of mankind. Thus is given the indispensable religious sanction to action, and, indirectly, to experimental science. . . .

The idea of setting up a "biblical" natural science found no general acceptance among the adherents of the Reformation. The idea was rejected by such influential writers as Ramus and Francis Bacon, Kepler and Wilkins. In Bacon's opinion, to seek "heaven and earth" in the word of God was to search for temporary things amongst the eternal; to seek philosophy in divinity was to look for the dead amongst the living. In general, the "biblicism" of the Reformed Christians was not concerned with scientific topics, and in seeking the data of science solely in the book of creation, *they followed the example of one of their main teachers, John Calvin.*

R. Hooykaas
Religion and the Rise of Modern Science, Eerdmans (1972), p. 84,85,117

BOOK REVIEWS

GOD, SEX, AND YOU, by M. O. Vincent, J. B. Lippincott Company.

Numerous books have been published in recent years dealing with the subject of human sexuality. Many authors have attempted to present a Christian viewpoint of this subject. All too often these supposedly "Christian" presentations seem more geared to a defense of ethical standards of the Victorian era than to a presentation of Christian standards for the 1970's. *God, Sex, and You* by M. O. Vincent, another in a series of books presenting evangelical perspectives to relevant issues of our contemporary society, is not in this mold. General Editor of this series is Dr. John W. Montgomery.

The author, Dr. M. O. Vincent, is a psychiatrist with extensive experience that would seem to qualify him well to discuss questions of human sexuality. As he states in the Foreword, he writes as "both a psychiatrist and a Christian."

This publication presents a resume of the present "sex scene" in western culture: the role of sex in literature, films, television, and the stage. This presentation is extremely brief, but does help to present the reader to a foundation for further discussions and concept development later in the book. Sexual problems faced by both the single and married individual in our society are discussed.

Upon examining the present scene, four commonly accepted ethical systems in our society are summarized that claim "the answer" to problems of human sexuality. First the Playboy philosophy is examined. The author identifies three aspects of the Playboy philosophy which he calls the "trinity" of the playboy "religion." This trinity is: 1) man, 2) pleasure, and 3) sex. Quotations from the writings of Harvey Cox and C. S. Lewis are used in arguing against the Playboy philosophy.

Another answer to man's sexual problems comes today from within the framework of religion. The writings of Joseph Fletcher, John A. T. Robinson, and Paul Lehman have combined to give a philosophical answer to sexual ethics known popularly as the "New Morality" or "situational ethics." An excellent review of the basic tenets of the New Morality is presented. It is suggested that this system of ethics is to a great degree a reaction to the hyper-legal positions regarding sex ethics prevalent in much of institutionalized Christianity. A well written critique of the sex ethics of the New Morality is presented. It is pointed out that the one basic difference between the sex ethics of the New Morality and the morality of Scripture is the position concerning the authority of Scripture. It might well be said that the conflict then is in reality a theological difference. A concluding statement summarizes the author's view of the New Morality system of ethics. He says, "The New Morality represents man's recurrent problem of overestimating himself, his reason, and his goodness."

A third answer to man's sexual problems is seen as a series of legalistic responses of "do's" and "don'ts." Many practical daily decisions about love, sex, and personal relationships cannot be dictated by a set of absolute rules. Man has developed a list of "do's and don'ts" which he equates to the absolutes of Scripture. Christ warned the Pharisees of this kind of activity. He similarly warns us of this legalistic ethic today.

The fourth system presented in answer to man's sexual hang-ups is the direction from Scripture of "God's answer." Documenting heavily (particularly from C. S. Lewis) Vincent explains what *agape* love is and places it in comparison to the concept of love as taught in the New Morality and the Playboy philosophies.

The latter section of the book places sex into a Scriptural perspective. Regarding premarital sex, there is a very strong position taken that the Biblical teaching is that sex relations are to be a part only of the marriage relationship between husband and wife. Scripture teaches that the two major purposes of marriage are for companionship between the husband and wife and for procreation. Consummation of both of these purposes can be obtained through sexual intercourse. Hence the act of sexual intercourse within marriage is seen as a good and rewarding act, created by God for the enjoyment of all of his creatures.

Vincent takes two positions that might possibly be considered questionable by many evangelicals. First, he states that " . . . the Christian home must favor sex education, whether that education is in the home, the church, or the schools." Secondly, after a thorough discussion of masturbation, the author concludes that " . . . if masturbation is utilized to decrease lust or excessive sexual fantasies, it is good."

This book is a positive contribution to the literature

Other Books Received and Available for Review

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

J. Blackburn, *The Earth Is the Lord's?*, Word, 1972
A.C. Custance, *The Two Species of Homo Sapiens*, Doorway Papers, 1972
A. Einstein, *Ideas and Opinions*, Dell, 1973
Frair and Davis, *The Case for Creation*, 2nd Edition, Moody, 1972
M. Green, *Jesus Spells Freedom*, IVP, 1972
W. Irvine, *Apes, Angels and Victorians: Darwin, Huxley and Evolution*, McGraw-Hill, 1972
J.R.W. Stott, *Your Mind Matters*, IVP, 1972
A.N. Triton, *Living and Loving*, IVP, 1972

on the topic of sex as seen through an evangelical perspective. It is well written. In spots the use of case studies or personal references by the author to illustrate a point may detract from the desired concept or idea being put forth. Nonetheless, adults with concerns over the role of human sexuality in their personal lives and in western culture will find helpful and stimulating reading.

Reviewed by Dean F. Miller, Assistant Professor of Health, The University of Toledo, Toledo, Ohio.

I BELIEVE BECAUSE by Batsell Barrett Baxter. Baker Book House Company, Grand Rapids, Michigan, 1971. 284 pp. $3.95 paperback.

The purpose in writing *I Believe Because,* says Batsell Barrett Baxter. ". . . is to help those of our generation whose lives are marked by despair to find hope through faith in God and His Son Jesus Christ" (p. 8). However, those in despair, not knowing of the "solid, respectable reasons" (p. 9) upon which Christianity rests, have not given it a serious hearing. Consequently, they do not find hope. A corollary purpose of his book is to point out ". . . solid foundations for our faith, foundations that will stand the tests of this scientific age" (p. 9), suggesting that when one knows and is confronted with "Christian evidences" (p. 18) he may be led to a faith in God and His Son. The emphasis is on *scientific evidences* which directly or indirectly support the claims of the Christian faith. With this kind of support, Baxter believes that the Christian faith can meet the skepticism of our age and the challenge of contemporary knowledge. It can be reasonable and academically respectable.

The book consists of thirty chapters. It is divided into the following parts: The Existence of God, How the Universe Began, The Inspiration of the Bible, Miracles, The Divinity of Christ, and Situation Ethics. The conclusions made by certain selected authorities to problems pertinent to the purpose of the book are summarized as evidences supportive of the Christian faith. There is no attempt to do a critical analysis of any of the given judgments nor to engage the reader in an argument or a detailed analytic study of the issues. Compiling and presenting them in this manner is in line with the author's purpose, which is, to persuade the reader that the Christian faith is worthy of his attention. These informative chapters will benefit a large portion of the lay public who are members and nonmembers of the Church. Clarifications on the kinds of problems that science attends to are made by scientists. The limitations of scientific claims and methodology are clearly brought out by them. It is, for example, refreshing to read Prof. Louis Bounoure's, a French biologist, comment on the evolutionary theory: "In short what science asks of us here is an act of faith, and it is in fact under the guise of a sort of revealed truth that the idea of evolution is generally put forward" (p. 134).

For the purpose of this book, Parts Three, Four, and Five and Chapter 27 are particularly informative and relevant. However, the scientific use of the term "evidence" may be strictly applied only to the problems discussed in Part Three, such as, The Limitations of Science, Age of the Earth, Theory of Evolution, etc. Proof, logical arguments, moral judgments, and justifiable beliefs are concepts more in keeping with the kinds of problems addressed in other sections, for example, The Moral Law Within.

Would You Give This Woman an Abortion?
Case 3

(*See page* 109)

Mrs. C. is 40 years of age. She has had 6 children, the youngest of whom is now 9 years. Her husband is a skilled craftsman. She herself has recently started work in a shop. This she claims is largely for the sake of companionship and for the pleasure of at least being able to get out of the home. She is at present complaining of not having had a period for 4 months, and wondering whether or not she is at the "change." On examination she proves to be 16 weeks pregnant. On being told this she appears indignant stating that she cannot be bothered to start again at her age.

For other test cases see pages 109, 112, 118, 121, *and* 124.
For the opinions of other Christians see page 127.

Dr. Baxter, chairman of the Dept. of Bible at David Lipscomb College (Nashville, Tennessee), should be commended for sorting out comments by men of science on matters pertinent to the faith, for compiling and summarizing them for those who may not have the time or capacity to engage in a study on these complex and often technical scientific problems. There is much information here, in summarized version, which is beneficial to anyone. However, there are certain elements in his book which need to be reviewed critically.

Most of the chapters range from 3 to 8, sometimes, 11 pages. Significant problems, such as The Age of the Earth, Thermodynamics, Evolution, etc. are treated briefly. Cosmological and theological arguments are summarily dismissed in 5 and 6 pages. Hypothesis, theory, and fact are talked about in one paragraph (p. 26)! The light and casual treatment given these problems sometimes suggests that the author's sole purpose is to "get the message across."

The book is also marred by a number of logically questionable statements characteristic of the author's argumentation. He says: "If the Christian religion is true, it will stand whatever tests are placed upon it" (p. 17). But in what sense is Christianity considered "true?" "Whatever tests" is too wide a claim to make to fulfill it! Quoting Leander Keyser, "Christian evidences is the scientific proof of the divine authority of the Christian religion" (p. 18) adds another confused statement. What does the statement mean? "Scientific proof" and "divine authority" belong to two different types of languages and are subject to different kinds of analysis. There is simply no way of talking intelligibly about "divine authority" being subjected to "scientific proof." In citing Bernard Ramm on Christian evidences (p. 19), the author missed the point that "Christian theology *assumes* the truthfulness of the Christian religion" (p. 19, italics mine), hence, is not subject to scientific scrutiny. Rather, its claimed "truths" function as axioms and are better discussed in the context of "proofs" and not "evidences." If the author suggests that "true" is related to "factuality," then Christianity cannot claim

uniqueness because it is "true" (factual). The conditions on factuality posited by Ramm (p. 27) could also be fulfilled by other religions.

On man's nature, Baxter says: "There is something about man, although somewhat indefinable, that reaches beyond the material universe in which he finds himself" (p. 41). But this is not saying much! If "this something" is indefinable, how can he go on to say that it is this something that reaches beyond the material universe? And, how naive to say that the lifting of one's eyes instinctively "from the earth upward to the top of the (Washington) monument," (p. 41) suggests that "there is something about the way our universe is made and the way man is made that causes him to lift his eyes to the heavens to seek God" (p. 41). What if one looks into the depths of the ocean floor, or into the heart of a flower?

Atheistic evolution, says the author, "holds that there is no God and that the natural universe and its laws originated by chance. This is a purely mechanistic outlook. It appeals to many because it eliminates the necessity of a God who requires the submission of man's will" (p. 119). But, evolution as a scientific problem cannot be given, strictly speaking, a religious connotation. The existence or non-existence of God, of course, may be inferred from it, but it is not a necessary part of the meaning of evolution. It is not an interest internal to the theory. The theory only claims that within a system and language of science, it can give a satisfactory and adequate explanation of the developmental processes of the universe. It does not claim to *know* whether God exists or not. Also, if the laws originated by chance, how can they be "purely mechanistic?" And, if the theory is "mechanistic in outlook," it suggests that man's will is required to submit, not to God, surely, but to its mechanistic operations. Man's whims are out! The view may, indeed, appeal to many, but on grounds other than those stated by the author. This view of evolution leads Baxter to make other odd remarks: "It is my conviction that the widespread teaching and general acceptance of the evolutionary hypothesis is responsible in a major way for these trends (materialism, permissiveness, more crimes, etc., p. 165). If a person comes to believe that he is only a graduate beast, that there is no God behind our existence, that there is no judgment to come, and that there is no eternal life hereafter, why should he not live as he pleases?" (p. 165) His conclusions cannot be granted for they are not strict derivations from the premises of the theory. Given the theory of evolution, there is nothing logically wrong in concluding that "We should do all the good we can do since there is no God to do them for us," or, "Hence, we should live, not to please ourselves but the state, some civic groups, or to give ourselves completely to our work for man's benefit." Also, the author has to show his grounds, and why he considers them defensible grounds, for correlating certain trends with the teaching of evolution. Saying that the claimed relationship is based on his conviction is not an argument. One's conviction is not equivalent to "evidence," which is the author's interest; neither is simple assertion synonymous with argumentation.

Finally, the author's insistence that the study of certain scientific evidences which tend to support the Christian faith may lead to a faith in God because they lend respectability to it is debatable. The problem of "evidence" and its relation to God's existence or one's belief in Him should have been more fully explored than is done in the book. The place and function that scientific evidences occupy in one's faith in God should have been clearly located and delineated. It is too much to assume that given "evidence," belief in the existence of God follows, as though they are logically related. But one is a scientific problem, while the other is a metaphysical religious claim, each of which requires its own kind of language, "evidence," and methodology. The piling up of all evidences does not equal the assértion that God exists/is. The evidences may be accepted scientifically; but God's existence, which some claim is supported by them, is not. This is why scientists may know the same set of established evidences while holding to different sets of beliefs about God. Knowing these evidences, even believing in them, does not necessarily lead one to a belief in God. What one knows and believes in are the evidences but not necessarily God. God's existence remains within the metaphysical realm of discourse, apart from the evidences which believers use in arguing for or talking about their beliefs.

Evidences, of course, may be used to support one's belief in God but this is not saying that belief in God and the evidences for it are the same kinds of claim. Indeed, for every "belief in" there is a corresponding "belief that." Thus, "I believe in Jesus Christ because I believe that He is a person sent from God;" or, "I believe in socialism because I believe that it is the best societal arrangement that will realize man's potentials." The set of "beliefs-in" constitutes one's faith while "beliefs that" are the "facts," examinable for degrees of verifiability, supporting the set of "beliefs-in." However, the "beliefs-that" can never be exhaustive enough such that the two forms of beliefs are identical, reducible one to the other. Even the "beliefs-that" of a "belief-in" socialism fall short of conclusive evidence that socialism is, *in fact*, the best social arrangement. Ultimately, one falls back upon his "belief in" (faith) socialism, and not upon the facts that support it. Clearly, then, if God is God, one's belief in Him must finally rest on His revelations of Himself. Much caution should be exercised in drawing implications from the fields of human knowledge for the purpose of supporting one's belief in the existence of God or for attesting to His verifiability lest we commit errors in logic or violate the standards of knowledge.

The Scriptures suggest that the believers in Christ are the best evidences for God's existence and the meaningfulness of believing in Him. As they conduct themselves in the traffic of daily living, a certain qualitative distinctiveness of behavior, which can be described only as "Christlike," is discerned, is sensed, is felt, and is seen by those with whom they work and live. (II Corinthians 2:15 and 3:2-3.)

Reviewed by Evelina Orteza y Miranda, Educational Foundations Department, University of Calgary, Calgary, Alberta, Canada.

CHRISTIAN FAITH AND MODERN THEOLOGY by Carl F. H. Henry (Ed.) Baker Book House, Grand Rapids, Michigan. 1971. 426 pp. Paperback $3.95.

This book is a reprint of a 1963 publication by Channel Press, New York, which originated from a

Summer Seminar in 1961 at Union Theological Seminary in New York.

The book contains twenty chapters written by different "evangelical" and "reformed" scholars. Obviously, space does not allow discussion of each of the chapters. I shall discuss several which were of particular interest to me.

The first three chapters review 20th century theology in Europe, Britain and America. These are quite interesting and informative. Unfortunately, they are dated, as the drastic shifts in radical Christianity of the later 60's are not presented. It does seem as though these chapters should have been updated in the republishing of this work.

The nature of revelation is discussed by Professor J. H. Gerstner of Pittsburgh Theological Seminary. It centers on the neo-orthodox-orthodox controversy, and comes down decidedly on the orthodox side. Revelation is said to be given in "two books"—the book of nature and the book of Scripture. Not much discussion is given of the book of nature, but some very important points about Scripture are developed. He concludes with a plea for understanding between orthodox and neo-orthodox theologians. Both schools of thought are said to "pay tribute to the Word of God which comes through the Bible."

A related topic, the nature of the Bible, is the center of thought for Professor R. D. Preus. The Bible is the Word of God. This is shown to be Christ's opinion and also the Bible's own opinion. Furthermore, Preus argues from such passages as Luke 24:25, John 10:35, and Mark 12:24 that Christ believed Scripture to be inerrant. A brief history of the "modern revolt against the Bible" is given. Starting with Sigmund Baumgarten (1706-1757), Preus discusses the view of Scripture of such men as Semler, Kant, Ritschl, Schleiermacher, Barth, Dodd and Brunner. The positions of each of these are criticized from the viewpoint of evangelical Christianity. Preus claims that if the "high doctrine" of Scripture is rejected, theology becomes "mere human opinion, insight, conjecture . . .". He ends his essay with a moving devotional paragraph thanking God for the joy of knowing His Word is true!

A chapter which is of obvious interest to the readers of *Journal ASA* is Professor Gordon H. Clark's "The Nature of the Physical Universe". This title is somewhat misleading, as the chapter deals mostly with the nature of scientific knowledge. In fact, Professor Clark's thesis is that nothing can be learned about the nature of the universe by the methods of science. Clark first discusses the views of two modern theologians (Barth and Bultmann). Barth tends to give a "twofold" view of truth, whereas Bultmann wishes to demythologize religious truth so that it harmonizes with scientific truth. Both assume that scientific truth is infallible. Over and against this view (which also is exemplified by A. D. White), Clark suggests that Henry Newman's skeptical words on alternative astronomical theories "Neither proposition is true and both are true; neither true philosophically, both true for certain practical purposes" be given further consideration.

The rest of the essay discusses three topics: Newtonian physics, modern physics and operationalism. Newtonian physics and modern physics are criticized from the point of view of operationalism.

The usual arguments for operationalism are presented, along with some implications for Christians. Since causality has been "exscinded" from science, it is argued that the uniformity of nature should also be exscinded. If this is so, miracles cannot be logically denied. Science is said not to describe the workings of nature, nor does it discover the laws of nature. Furthermore, since science cannot answer such basic questions as, What is light?, or What is motion?, we need not expect science to answer the question, What is God? Clark ends his essay by asserting that the aim of science is invention, not description or explanation.

This is not the place to give a detailed critique of Professor Clark's essay. Two critiques of his philosophy of science are given in *The Philosophy of Gordon H. Clark* (Presbyterian and Reformed Publishing Company, ed. by Ronald H. Nash). The critiques are by Professor H. H. Hartzler and Professor J. T. Stahl. However, I do believe his views are important, and warrant discussion within the Christian community.

Professor H. B. Kuhn concludes the book with an essay on the nature of the last things. He briefly describes various evangelical views of eschatology, and then discusses various "20th century revolts against eschatology." He ends his paper with what he calls the elements integral to the Christian Hope.

It is unfortunate that the postmillenial view is misrepresented. Postmillenialists do not believe as Kuhn claims, that by "earnest and dedicated efforts the church can bring about a world wide devotion to the Christian Gospel". If this is to occur (and postmillenialists believe it is), it will happen because the Holy Spirit brings it about.

Furthermore, he misrepresents the traditional Reformed postmillenial view by saying that "after the world has been conquered by the Gospel, the Lord will return to claim His Kingdom and will establish a thousand years of peace under the Messiah's reign". Hodge, Warfield and Boettner all state quite clearly that at the end of this age when the Lord returns, the resurrection of the dead will occur; following which the last judgment will take place. Then the kingdom will be finally established in the new heavens and earth. No literal thousand year earthly reign is supposed by these postmillenialists.

The essay ends with the important assertion that it is only after the fulfillment of the last things that we will be able to say "This is that glorious event". Such humility in prophetic interpretation is indeed rare!

Other topics in the book include: God, man, sin, redemption, history, Jesus of Nazareth, the Holy Spirit, resurrection of Christ, regeneration, faith, justification, sanctification and the Church. A biography of over 100 books is given at the back of the book.

In all, it is an important book. It certainly fulfills its description of "a reasoned defense and elucidation of traditional Christian perspectives to the modern world."

Reviewed by David E. Laughlin, Research Associate, MIT, Cambridge, Massachusetts.

EVOLUTION OF MAN, by Louise B. Young (Ed.), New York: Oxford University Press, 1970, 648 pp., $10.00.

That books continue to be written (and published) about evolution in general, and about human evolution in particular, reflects man's obsessive and persistent desire to know his origin and nature. Significantly, the plethora of these works demonstrates that certain

Would You Give This Woman an Abortion?
Case 4

(*See page* 109)

Mrs. A. is a woman of 28 years, with two children, a boy aged 10 and a girl aged 8 years. She is happily married. Her husband is a clerk who is having to spend an increasing amount of time helping his wife with the housework. Three years ago she was diagnosed as suffering from cardiac disease, which is causing increasing limitations in activities so that now she gets breathless on carrying out normal household duties. Cardiac surgery is being contemplated but she is told that any improvement may not be lasting. Despite the fact that she has been using a vaginal cap and contraceptive jelly she has missed two periods. On examination she is found to be an intelligent woman, rather underweight, with evidence of valvular heart disease, and 10 weeks pregnant.

For other test cases see pages 109, 112, 115, 121, *and* 124.
For the opinions of other Christians see page 127.

problems remain unresolved among scientists who endeavor to grapple with the complex questions bearing upon the understanding of man. The thoughtful Christian cannot ignore the challenge in these writings, for he may find it necessary to reconcile the conclusions with Biblical statements, or even modify traditional interpretations of Biblical passages, as he becomes cognizant of research results by evolutionists.

In any case, the scientist who holds Christian assumptions must not renege in his responsibility to achieve understanding of evolutionistic thought, and, if necessary, to "contend for the faith once delivered." Many Christian scholars will note with interest that even scientists who do not hold a theistic *Weltanschauung* continue to reexamine and reaffirm their evolutionistic conclusions—a poignant commentary on existing uncertainties which linger to plague serious evolutionists. The logical conclusion one reaches is either that the issue preserves doubts in many scholars' minds, or that some scholars have become evangelists in order to proclaim the assumed merits of their position with the hope to gain converts.

In *Evolution of Man*, the editor, Louise B. Young, has compiled an impressive array of writings which for the most part reveal the intense desire by evolutionists to explore fundamental problems that attend their position, together with the possible results inherent in their conclusions. The wide range of relatively brief selections, mostly excerpts from extended treatments, include the views held by sixty-five thinkers from diverse professions. Each representative view has had significant influence upon contemporary thought, Christian and non-Christian, about the nature of man. The range of writers includes such diverse personalities as Charles Darwin, Theodosius Dobzhansky, Ernest Haeckel, Julian S. Huxley, L.S.B. Leakey, George G. Simpson, B.F. Skinner, Adolph Hitler, Friederich Nietzsche, William Paley, George Bernard Shaw, and Pierre Teilhard de Chardin. Of course, all of the authors do not necessarily favor evolution, or they may differ somewhat in their interpretations of the theory.

It must be emphasized that the editor has not assembled an incoherent *pot pourri* to obscure or complicate the problems. Rather, there is remarkably commendable organization which presents in logical sequence the following major problems: (1) Is there sufficient evidence for evolution? (2) What causes evolution? (3) Does evolution imply progress or purpose? (4) What is the origin of man? (5) Did mind evolve by natural selection? (6) Is civilization a new aspect of evolution? (7) How successfully is man controlling his environment? (8) Is civilization retarding the evolution of man? (9) Should man control his own evolution? and (10) Can science lead mankind into a better world? It is readily apparent that, despite eclecticism in selection, the editor favors evolution as the most satisfactory answer by which to account for the amassed evidence from various disciplines.

The value of such a compilation to the Christian scholar is that it constructs a convenient and encyclopedic form which permits an evaluation of key problems confronting those who espouse evolution. While I remain unconvinced that one must accept evolution (or more specifically, "macro-evolution") as the only reasonable interpretation of the adduced data and evidence, I believe firmly that every serious Christian, be he "Creationist" or "Theistic Evolutionist," will find Young's compilation to be very useful as a collection of relevant ideas. Admittedly, some Christians who find themselves wavering in indecision, which has induced tensions and anxiety in relation to their faith, will find the book somewhat threatening. This observation rests upon the obvious fact that the thematic outcome in the volume's progression from questions of validity to terminal questions of application is intended to buttress the evolutionist's stance.

Since this view is geared primarily to those who hold theistic views about the world and man, including some who deny that ardent evolutionists retain any degree of "objectivity," we may select (albeit inadequately due to the compilation's comprehensiveness) certain key statements containing ideas which reveal the cautionary attitude held by those who recognize that science deals with theoretical probabilities rather than absolutes.

In the initial section which treats the problem as to adequate evidence to sustain evolutionary theory, there is a description of facts and observations which led to the general acceptance of the theory. But, since science is the implementation of the "proof," the problem is not completely resolved, for there remains such questions as: "Is the proof final and irrefutable?" and "What constitutes scientific proof and what is the value of a scientific theory?" Dobzhansky, in this section, notes correctly that "antievolutionists still exist. But it is fair to say that most of them are not well informed, while the informed exceptions display biases which make arguments futile and facts useless" (p. 58). Certainly many members of the American Scientific Affiliation will accept this statement, but some will respond that bias is not an exclusive for "antievolutionists" only. E.N. da C. Andrada's observation, when he contrasts religious and scientific positions, should be noted by every Christian scientist:

> The difference, then, between any religious belief and a scientific theory is that the former has for the believers an element of absolute truth: it is a standard by which they stand or fall, and to abandon it is dishonour and sin. The scientific theory is, however, only

> true as long as it is useful. The man of science regards even his best theory as a makeshift device to help him on his way, and is always on the lookout for something better and more comprehensive (p. 61).

The series of articles in section two probes causatory problems. The key question posed is: Does the theory of natural selection account for the facts of evolution in the light of present day knowledge? Natural selection is, of course, but one mechanism (albeit a crucial one) involved in the acceptance of any form of evolution. That there exist reasonable doubts as to the complete adequacy of mutations and natural selection in evolution is described by Ludwig von Bertalanffy thus:

> Here we come to an important problem. The theory of evolution, based upon an enormous amount of factual evidence, states that the animal and plant kingdoms have arisen, in the course of geological time, from simpler and more primitive forms to more complicated and more highly organized ones. Genetical experience leads us to accept as a fact that this has happened by way of step-like mutations. Actually, however, we find no evidence either in the living world of today or of past geological epochs for a continuous transition. What we actually find are separate and well-distinguished species. Even the existence of more or less numerous mutations, races, subspecies, etc., within the species does not alter the basic fact that intermediate stages from one species to another which should be found if there were a gradual transition, are not met with. The worlds of organisms, living and extinct, do not represent a continuum but a discontinuum (p. 123).

Section three attends to the problems of progress and purpose in evolution. A contrast is set forth wherein ancient man is cited for his belief in cosmic purpose but not in the idea of progress. Now, however, many scholars believe in progress but they reject the notion of cosmic purpose. The question that emerges is this: Has evolutionary theory contributed to this change of beliefs? The editor includes certain concluding remarks made by Charles Darwin in his epochal work; here is a pertinent example:

> There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved (p. 143).

This earlier view, with its assumption (or was it concession?) of purpose has been vigorously challenged by many contemporary evolutionists. In their rejection of purpose, some share the rather despairing position expressed by the erudite George Gaylord Simpson:

> I was at this point in the summary, when I coincidentally came across some highly pertinent remarks in a recent example of the legions of articles deploring the decline of religious faith. The author, a distinguished philosopher, finds himself agreeing with certain ecclesiastical dignitaries that chaos and bewilderment in the world today result from loss of faith in God and religion. This has become almost banal by constant repetition (although I beg leave to note that repetition does not establish truth). From this point, however, the author takes a less beaten path and one not likely to comfort the godly. He finds that, indeed, the old religious faith was unjustified and that the truth is quite otherwise. He does not question or even particularly deplore the fact that the universe does not operate by divine plan, but he thinks it a great pity that we ever found this out. He is a little petulant with scientists for discovering that the world is purposeless and thus forcing abandonment of religions that require the postulate of purpose. He can only face the fact that childish dreams of a meaningful universe must be laid aside, and he exhorts mankind to become adult and to live as honorably as may be in a stark and bleak world (p. 173).

This, of course, is not Simpson's view, for he is merely summarizing the thoughts of the "distinguished philosopher" who is W.T. Stace (as explained in a footnote). The pathos is not only in the fact that Simpson refers to the despondancy of Stace, the philosopher, and believes that "it is even more juvenile to blame the loss rather on the scientists (unkind adults) who exposed the sham than on the falseness of the dream or on the dreamers" (p. 173). Listen, indeed, to Simpson's conclusion:

> The ethical need is within and peculiar to man, and its fulfillment also lies in man's nature, relative to him and to his evolution, not external or unchanging (p. 173).

The problem of man's origin as discussed in section four centers on the present knowledge of the evolution of man as well as the way in which this knowledge affects man's understanding of his own nature. Ultimately, the discussion leads to this poignant question: Is man merely an animal that is distinguished by certain unique characteristics? Even those of us who are ardent theists and who hold reservations adamantly about evolution cannot deny the fact that man as a biological organism is in that sense an animal. However, in reading the statements of the distinguished thinkers included in this section, I cannot but bemoan the fact that they are agreed that, at best, there is merely a quantitative difference between man and the animals. Perhaps, however, there is room for the view that man is a creature in the "image of God" with an eternal soul and/or spirit in this argument by Julian Huxley: (even though I am inclined to believe that he would deny my proposal):

> We have tended to misunderstand the nature of the difference between ourselves and animals. We have a way of thinking that if there is continuity in time there must be continuity in quality. A little reflection would show that this is not the case. When we boil water there is a continuity of substance between water as a liquid and water as steam; but there is a critical point at which the substance H_2O changes its properties. This emergence of new properties is even more obvious when the process involves change in organization . . . (p. 181).

Closely associated with the problem of man's uniqueness in the animal kingdom is the question raised in section five of Young's compilation. The inquiry is: Did mind evolve by natural selection? Darwin and Wallace as two pioneers in evolutionary research differed on this question. Darwin believed that man's mind occurred by the process of natural selection but Wallace contended that the process was not sufficient to account for it. With my theistic presuppositions, and my reservations about evolution, I find Loren Eisley's comments striking a harmonic chord in my symphony of ideas (although other of his views represent dischord to me!):

> Ironically enough, science, which can show us the flints and the broken skulls of our dead fathers, has yet to explain how we have come so far so fast, nor has it any completely satisfactory answer to the question asked by Wallace long ago. Those who would revile us by pointing to an ape at the foot of our family tree grasp little of the awe with which the modern scientist now puzzles over man's lonely and supreme

> ascent. As one great student of paleoneurology, Dr. Tilly Edinger, recently remarked, "If man has passed through a Pithecanthropus phase, the evolution of his brain has been unique, not only in its result but also in its tempo . . . Enlargement of the cerebral hemispheres by 50 per cent seems to have taken place, speaking geologically, within an instant, and without having been accompanied by any major increase in body size (p. 271).

I will attempt little more than to abbreviate further comments in this review. Section six by Young is concerned with civilization as a new phase in the evolutionary process; the influence of Teilhard de Chardin is obvious in the suggestion that a synthesis in which each human being may cease to be a conscious individual by merging in a super-consciousness! Section seven seeks to explore the problems following in the wake of man's irresponsible exploitation of natural resources leading to an "artificial environment." Optimism and pessimism occur with some authors believing that, ironically, the "inventive mind that gave man his unusual adaptability, and resulted in his dominance, could be leading him into the evolutionary cul-de-sac of overspecialization" (p. 374). The imperative, say others, is to stop thinking in terms of solving isolated mechanical problems and more in terms of understanding the total biotype. Cast in a non-scientific context, this conclusion is reminiscent of the Hopi Indian's view that the individual must see himself cooperating within the system of the universe!

Section eight notes that improved standards of living and advance in living have altered the death and birth rates of mankind; hence, the evolutionist is confronted by new factors which may be adversely affecting human evolution by enabling other than the "fittest" to survive. My reaction to such thinking is that "playing God" is a game with rules that are hard to come by. Section nine considers the affinal question as to whether or not man should control his own evolution on the assumption that he is increasingly able to do so. And, finally, section ten projects problems of evolution and application onto a larger screen with the question now becoming: Can science lead mankind into a better world? In an analogous generalization, these last sections reflect mankind's advanced state of pregnancy in which, with ambivalence, it will attempt to bear, through attentuated and intense labor pains, a civilizational offspring, hopefully free from the anatomical, social, and cultural "sins" that have characterized previous evolutionary "procreations." But mothers have died in childbirth while others have experienced only regret in an offspring. Personally, I feel that the state of euphoria postulated in Revelation 21 and 22 provides me more than that postulated in the conjectural ultimate of many of Young's contributors.

Nevertheless, the value of Young's book has led me to ask myself this question: How could I have overlooked this heuristic compendium of ideas on evolution? The book has been in my library for about a year. Certainly fiat creationists like Davidheiser, Morris, and Wilder Smith may frown upon my suggestion that there is much to be learned from those who probe the meaning of life and man with the evolutionary perspective. Admittedly most of them ignore the Supernatural—God in the Biblical sense—while they tend to apotheosize science. While I retain reservations about "theistic evolution" as allowed by Bube, Eckelmann, Overman, and others, I find common ground for my thinking in an intermediate position that posits God's creative activity (see Bube, "We Believe in Creation," in *Journal ASA*, December, 1971). Perhaps Mixter's "developmentalism" can be used to reveal my opinion in reference to this recommendation: Young's *Evolution of Man* is a superior compilation that is both comprehensive and well-organized; it should be included in the reading of every Christian who is characterized by maturity and intellectual interest in the nature of life and man. *Cautionary note:* The book is not a devotional tract on godliness.

Reviewed by George J. Jennings, Department of Anthropology, Geneva College, Beaver Falls, Pennsylvania.

DARWIN RETRIED: AN APPEAL TO REASON

by Norman Macbeth, Gambit, Inc., Boston. 1971. 178 pp. $6.95.

In the spirit of Kerkut's famous *Implications of Evolution*, Norman Macbeth, a lawyer by profession, presents the fruits of his ten year study of Darwinian evolution. He cites evidence that classical Darwinism has been almost completely abandoned as untenable by the evolutionists themselves but that the public is still led to believe that all is well in Darwiniana. Macbeth has done his reading homework well as he constantly catches evolutionists denying or deflating their own or others statements in his profuse quotes of Simpson, Mayr, Dobzhansky, Huxley, Eisley, Hardin, Stebbins and many others.

Macbeth takes apart Darwin's ideas chapter by chapter throughout most of the book. First, it seems that comparative anatomy and embryology cannot in themselves be unquestionable evidence because they pose too many problems such as family trees with only branches, too many dead ends, and fossil horse ancestral pictures that seem to be straight line evolvements but do not follow the real evidence. Darwin had great interest in the work of breeders; they have however, never been able to bring about more than very small changes because of "the limits of variability, the curse of sterility, the dangers of extrapolation, the hopelessness of trying to convert bears into whales or of breeding winged horses . . .".

In the past a number of pet phrases and ideas such as natural selection, the struggle for existence, the survival of the fittest, adaptation, and sexual selection have permeated the field of evolution. Macbeth attempts to prove that natural selection, the struggle for existence and the survival of the fittest actually turn out to be tautologies that would never stand up in a court of law as proof of an idea. In fact, each of these cardinal ideas is rejected by various evolutionists or, at least, not used by them while others continue to cling to these ideas. Adaptation is said to present problems because there are organisms that are not well adapted but still continue to survive (clowns) while others have such intricate behavior patterns (wizards) that it is hard to fathom how they got their start and continue to hold their own. Furthermore, those who fit expertly (craftsmen) have never been able to take over the earth. Even sexual selection had its inconsistencies when it was discovered that in some species "hens mate with the defeated cocks as readily as with the victors".

According to Macbeth, one of the greatest problems is that natural selection is mindless; therefore all intermediate evolutionary steps must be advantageous to the species but there is little evidence for these stages and too much perfection along the way. Natural selection turns out to be a Paley-type Watchmaker for some, including Darwin, using words like scrutinizing, rejecting, preserving and improving as they described the processes of natural selection. Youthful mountains, migrating polar regions, frozen mammoths with buttercups in their mouths, and the tremendous lava beds of the northwest area of the United States are some of the evidences that pose problems for absolute uniformitarianism. Macbeth does not think that evolutionists can explain either extinction or survival. Finally, Macbeth finds it difficult to think that Goldschmidt's "hopeful monster" helps the situation either.

While presenting evidence against the major points of Darwinism, Macbeth leaves the reader in a vacuum as he does not attempt to propound any other theory. He does not deny the idea of evolution but thinks that scientists ought to get busy looking anew for the proper evidence instead of continuing to mislead the public by defending insufficient ideas. He suggests "that the standards of the evolutionary theorists are relative or comparative rather than absolute." Since the burden of proof lies with the proponent while the critic or skeptic may peck away at "every link in the chain of reasoning", it is not enough to say that the present evolutionary theory is "best-in-field fallacy". Macbeth thinks that the best way for a scientist to work is to present a reasonable theory, hold that theory lightly, and part with it cheerfully the moment there is even small contrary proof. This, of course, is the idea under the scientific method, and Macbeth thinks that many scientists have lost their objectivity as they have made evolution more than science.

Macbeth is just as hard on those who accept a mode of creation as he is on evolutionists. The cover itself talks about the "fairy-tale philosophy of creation" and he reiterates the old questions concerning the creation of horrors in nature by a benevolent god (ignoring the fall of man and earth) and how an omniscient god could let 99 out of 100 created species become extinct. Paley-type Watchmakers are outside the realm of science and Macbeth denies that creation need be the only alternative to natural selection–scientists must start looking for a third true alternative. Macbeth thinks that creationists are now generally on more sophisticated grounds than Wilberforce or Bryan and that they see the facts more clearly as evidenced by the symposium *Evolution and Christian Thought Today* (an ASA publication edited by Russell Mixter) in which the major authors are described by Macbeth as professional scientists "though not in first-class universities".

Macbeth says that "Darwinism itself has become a religion" with missionaries, unassailable doctrines, reproofs by the brethern, and a future heaven on earth (as evolutionary directions become better controlled). After giving Simpson a rather hard time in the book, Macbeth defends him for overcompensating in justifying evolution because Simpson is probably trying to topple Watchmakers. In fact, Macbeth thinks that one of the big problems is that evolutionists "fear that the fundamentalists will gloat over their discomfiture" and that this is what keeps them from airing their dirty linen in public. But he believes that scientists "are not expected to be infallible, confession is good for the soul, and candor is always highly valued".

Generally the book is like a case study in court with Darwin and those that followed him standing trial for their theory. The book is easily read even by nonscientists, keeps one's attention, is witty at times, and gets right to the point. For creationists, who have made similar sudies, there are very few thoughts in the book; for them the real value seems to be the placing of the information under one cover and the credentials of the one who says it. Macbeth will probably be read by hard core evolutionists while creationists, who have often heen saying the same sorts of things, are generally ignored. It appears to be healthy to clear the air by bringing important criticisms to the forefront. The book is certainly provocative reading for those who are interested in the problems that beset Darwinian evolution and especially important reading for those who think that there are few, if any, problems.

Reviewed by Donald Munro, Department of Biology, Houghton College, Houghton, N.Y.

WHY NOT CREATION (1970) and **SCIENTIFIC STUDIES IN SPECIAL CREATION,** (1971) both edited by Walter E. Lammerts. Both copyrighted by Presbyterian and Reformed Publishing Company, Nutley, New Jersey, with *Why Not Creation* printed by Baker Book House, Grand Rapids, Michigan.

These two books consist of selected articles reprinted from *The Creation Research Society Quarterly,* Volumes I-V (1964-1968), a period of time during which Dr. Lammerts served as president of The Creation Research Society.

The authors of these articles are Christians, most of them with training and experience in science. The articles deal with a wide range of topics, including theol-

Would You Give This Woman an Abortion?

Case 5

(*See page* 109)

Miss L. is a well-built, well-groomed young lady and looks considerably older than her 16 years. She is an only child living with her mother; her parents are separated. She denies ever having had sexual intercourse previously. She claims she went to a party with several friends. She claims that she was very careful and moderate with her drinking, but believes that the drinks had been 'spiked' with vodka, unknown to her. She has no clear recollection of the party, but became aware that one of the boys, in the dark (she does not know which one) had 'raped' her. Her boy friend drove her home. She was too terrified to tell her mother, or anybody else, until she had missed four periods. Examination confirmed that she was 16 weeks pregnant, but no disease was detected. Her mother, who accompanied her, firmly demands an abortion on the grounds of 'rape.'

For other test cases see pages 109, 112, 115, 118, *and* 124.
For the opinions of other Christians see page 127.

ogy, geology, radiometric age measurements, paleontology, several areas of biology and anthropology, biochemistry, and philosophy of science. Most of the articles are written so as to be understandable by the untrained reader, although some background knowledge in science would be helpful. A few papers become quite highly technical and difficult for the lay reader.

I know of no one who is competent to judge the merits and deficiencies of articles in all these areas. My comments are based primarily on my reactions to articles dealing with geology, chemistry, and radioactivity, which are subjects in which I have spent considerable study and claim some competence. Comments touching on theology and on philosophy of science come from my laymen's viewpoint.

There is discernible a common tone which runs through nearly all of these papers. That tone reflects the particular view of Scripture and of science which the authors hold in common, and which is probably expressed most clearly in the credo of The Creation Research Society. I think that quotations from this credo are helpful as background for evaluating these books.

> Creation Research Society members affirm that "The Bible is the written Word of God, and . . . all its assertions are historically and scientifically true in all the original autographs. All basic types of living things, including man, were made by direct creative acts of God during the Creation Week described in Genesis." They subscribe to "a concept of dynamic special creation (as opposed to evolution), both of the universe and the earth with its complexity of living forms." And they "propose to re-evaluate science from this viewpoint." Their "eventual goal is the realignment of science based on theistic creation concepts."

One way in which that credo is put into practice is in arguing for a young earth, not more than about 6000 or so years old. This view demands that the results of radiometric dating of rocks, fossils, and artifacts somehow be in error. Accordingly, attempts are made to discredit radiometric dating in articles by R. H. Brown, Robert L. Whitelaw, and Robert V. Gentry in *Why Not Creation?* and by D. O. Acrey, Melvin A. Cook, and Harold L. Armstrong in *Scientific Studies in Special Creation*. One approach used is to point out "problems" in radiometric techniques. Scientists who do the experiments know and admit that some problems do exist, and that not all samples have concordant ages when measured by more than one method. But the articles make no mention of the fact that the majority of samples are concordant, and the evidence overwhelmingly points to an old earth. In attempting to discredit potassium-argon (K-Ar) dating, Robert L. Whitelaw is mistaken when he criticizes the supposed assumption that the Ar-36 to Ar-40 ratio has remained constant through the ages; that assumption is not made (p. 98 of *Why Not Creation?*). The Ar-36 to Ar-40 ratio is used to correct for air impurities which have somehow entered the mass spectrometer used for measuring the Ar-40 content of the sample (the mass spectrometer is operated under high vacuum, and air would enter any leak). On p. 99, in the same connection, Mr. Whitelaw makes a statement which is flatly false, namely, that "quantities of radioargon . . . are the difference between two quantities . . . each a thousand to ten thousand times greater." In fact, radioargon is more than 50% of the total Ar-40 for many samples, and, except for very young rocks, is more than 10% of the total for nearly all samples, which is far greater than the 0.01% to 0.1% claimed by Mr. Whitelaw.

Another approach is to attempt to construct the evidence in such a way as to support the idea of a young earth. This sometimes backfires, as it did in the case of the treatment of Carbon-14 dating by Cook (pp. 79-83 of *Scientific Studies in Special Creation*) and Whitelaw (pp. 93-96 of *Why Not Creation?*). They note that the measured decay rate of ^{14}C in living organisms is well below its estimated production in the atmosphere. If that estimated production rate is accurate, and if it has remained constant throughout past history, then this indicates a young earth, with the ^{14}C production mechanism being only about 6000 to 15,000 years old. If this is so, then living organisms would have contained less ^{14}C in the past than they do at present, with the ^{14}C content being less and less as one goes farther and farther back in history. This has been checked by measuring ^{14}C decay rates of samples whose ages are known from historical documents or tree ring dating, and several papers on the subject have been published since 1965. The results indicate that ^{14}C decay rates in living organisms have remained nearly constant for the past 2500 years, and that they were 10% higher 7000 years ago than they are today. The agreement between historical and tree ring samples is very good, and the ages of these samples are known with good accuracy. These data argue that ^{14}C contents of living organisms have not been increasing regularly (exponentially) with the passage of time, and therefore the discrepancy between ^{14}C decay rate and production rate cannot be used as an argument for a young earth. The estimated production rate may be inaccurate, or it may have increased recently, or there may be an unknown reason for the difference between rate of production and rate of decay, but the argument for a young earth on this basis fails in any case. (When he was confronted with this evidence through personal correspondence in 1972, Dr. Cook persisted in the claim that ^{14}C data support the idea that the earth is young.)

In an article entitled "Science versus Scientism in Historical Geology" in the book *Scientific Studies in Special Creation,* Dr. Henry M. Morris seeks to exclude the study of geologic history from the realm of science by definition, saying (p. 105) "science deals with the data and processes of the present, which can be experimentally measured and observationally verified." He warns against extrapolating physical laws beyond the limits of "a certain time" into the past or future. If he means a rather short time, as he obviously does with regard to historical geology, his too narrow definition of science also excludes most of astronomy. In the same discourse (p. 108), Dr. Morris claims that "the second law of thermodynamics is proved beyond question, with no known exceptions" (in about 100 years of experiments). On the next page he states that "ALL geochronometers are suspect" because "there is never any assurance that the decay rates will be constant", although (in about 70 years of experiments) the most drastic changes of conditions that we have been able to produce on earth have not produced changes in decay rates of radioactive materials used in radiometric age measurements. (One experiment has produced a change of 0.07% in ^{7}Be, the isotope whose decay rate has the greatest known sensitivity to changes

in chemical conditions.) It seems to me that consistency of results from 70 years of study merits nearly as much confidence as consistency of results from 100 years of study.

It is regrettable that the argument against evolution by an improper application of the second law of thermodynamics crops up in several places in these books. As has been stated elsewhere and often, the earth is not a closed system, and the energy we receive from the sun makes it possible for decreases of entropy to result from natural processes, and we observe such occurring. It may be possible to refute the claims of evolutionary theory, but it is not possible to do so on the basis of the second law of thermodynamics.

It is also regrettable that some of these papers launch vigorous arguments against a straw man in the form of a misunderstanding of the meaning of uniformitarianism in geology. I quote from *Geology* by Putnam and Bassett, (2nd. Ed., Oxford University Press, 1971) p. 22, "Modern interpretations of the principle of uniformity do not require that all of the processes that act upon the earth must be going on at the present time. Nor is it assumed that processes have always proceeded at the same rate, or at a necessarily slow rate. What they do assume is that physical and chemical laws operate now as they did in the past; the laws that apply to matter and energy are unchanging. The conditions under which they operate are, however, constantly changing." That interpretation is the one which geologists use, and it is approved by Dr. Morris (p. 109 of *Scientific Studies in Special Creation*). Why does he yet accuse geologists of scientism? (p. 112)

I join the writers of these books in confessing the God of the Bible to be the Creator of the universe. I join them in confessing Jesus Christ as His Son and as my Saviour and Lord. The examples cited above, however, demonstrate the inadequacy of the science which these books present. The Bible claims that God reveals Himself to us in nature, too. Though we should not be uncritical in evaluating the claims of science, that Biblical confession should produce in us an openness to the results of scientific study. These books fail to display that kind of openness to knowledge to be gained by the study of God's world.

One final comment. It is interesting that Dr. Henry M. Morris, a prominent leader in an organization called "The *Creation Research* Society" in an article in a book called *Scientific Studies in Special Creation* should write (p. 117) "it is fundamentally impossible for science to learn anything about origins."

Reviewed by Clarence Menninga, Department of Physics, Calvin College, Grand Rapids, Michigan.

THE SCIENCE AND CREATION SERIES, by Henry M. Morris and Jimmy F. Phelps (eds.) Includes 8 student books, 32 pp. each; 8 teacher's editions, approximately 32 pp. each; *Science and Creation: A Handbook for Teachers,* by Henry M. Morris, William W. Boardman, Jr. and Richard F. Koontz, 100 pp. All are published by the Creation-Science Research Center, 2716 Madison Avenue, San Diego, Calif. 92116, in 1971. $1.75 each except *Science and Creation* $3.50. Set $28.00.

Science and Creation was written to state the fiat creationist (anti-evolutionary) view as an aid for teachers wishing to present both creationist and evolutionary theories of origins as alternatives. I personally agree with this notion, and *Science and Creation* does a good job. Any reader who hasn't read *The Genesis Flood* or a comparable work owes it to his intellectual honesty to read *something* by Morris and/or Whitcomb, and this little guide would serve well. It has thought-provoking comments and references on a wide variety of subjects from astrophysics to zoology.

One particular asset is the extensive use of footnotes and a valuable listing of resource materials. However, I am led to ask why the members of the Creation Research Society do not publish in the referred literature? How can they expect to have any effect on the scientific community at large if their findings and speculations are confined to their own publications? Mulfinger's critique of stellar evolution and the studies on fossil human footprints deserve wide circulation. Judging by the references in *Science and Creation,* they have not received it.

There are flaws in *Science and Creation,* of course. The authors attack uniformitarianism in geology and use it to show that by population growth estimates, the first men appeared a few years ago, rather than a few million! They fail to recognize the fact that increasing the mutation rate may increase fitness in changing environments. (*Science,* 162:1456; 169;686) There are misspellings (Cenezoic, p. 78).

The eight student books, one per grade, are as follows: (subject matter in parenthesis)

1. *This Wonderful World* (Design and Causality)
2. *Our Changing World* (Work, Energy and Entropy)
3. *The World of Long Ago* (Fossils)
4. *The Living World* (Biology)
5. *Man and His World* (Scientific Method, Origin of Man)
6. *Worlds Without End* (Atoms, The Universe)
7. *Beginning of the World* (Biological Evolution)
8. *The World and Time* (Dating)

These books are much too short for any study longer than a unit. They consider essentially nothing except as it relates to creationism. There is nothing about weather, the planets are not named, etc. Thus the series can be only supplemental to existing materials.

The photographs are stunning, but the art work varies from fair to ghastly. The first book, which has no non-cover photographs, and relies mostly on art rather than text, is terrible. There are 2 spiders on the same page, one with four legs and one with six. Ants are drawn with legs coming from the thorax, the abdomen, or both, all on one page. A fly's eye facets are represented as square, rather than hexagonal. The pictures of people throughout this volume are mostly so poor as to suggest deformity. I would argue with a photo of "footprints" in *The World of Long Ago.* It is *not* clearly a human footprint, (a more convincing picture of a fossil footprint appears in another volume) and two halves of one rock are claimed to show two separate footprints. *Worlds Without End* has some misleading photos of atomic models. There are no drawings of minority people in the entire series with one possible exception. Except for *This Wonderful World,* the series is exceptionally attractive.

The editors have not coordinated the series well. The teacher's manual for *This Wonderful World* lacks any introductory material at all. Two of the teacher's books have glossaries, the rest don't. The pupils books should have them, but *Our Changing World* is the only

Would You Give This Woman an Abortion?

Case 6

(*See page* 109)

Miss I. aged 20 years has two brothers and a sister older than herself and one younger brother. All of them have been to a school for the educationally subnormal. None of them is married. She works in a fish and chip shop. Her sister had an illegitimate baby recently of unknown parentage. The patient denies that she has a boy friend and claims that she was 'raped' by her younger brother, aged 18 years. Her mother goes out to clean offices; her father has been dead for some years. The medical social worker confirms the mental status of the family and describes the home as a slum. The patient does not remember the date of the alleged offence, nor can give any details of her menstrual history. On examination she is a well-built, unkempt woman some 10 weeks pregnant.

For other test cases see pages 109, 112, 115, 118, and 121.
For the opinions of other Christians see page 127.

one that does, and it consists solely of a listing of the pages on which certain words are found! Another error is the reference to entropy, potential and kinetic as "funny" words in the same volume. The most serious inconsistency is in philosophy. Chittick, Boardman Blyth and Olson in the teacher's *The World and Time* say that "the teacher should be very careful to allow students to reach their own conclusions regarding [what dating methods tell about the age of the earth]", but Beckman, Dudeck and Danielson in the teacher's edition of *Our Changing World* state "young [children's] . . . . . everyday experience . . . . makes it easy and natural for them to see the strong influence of an initial special creation. This natural inclination should be reinforced, not thwarted and confused by the illusory concepts of evolution, if the child is to attain the highest goals of which he is potentially capable." Both these statements have merit, but it is a mistake to use both philosophies in one series.

Overall, the series is acceptable for the purpose for which it was intended. It promotes creationism, does not mention evangelical fundamentalism, and attempts fairness to other views, which is more than most science books do. There are errors, and usefulness is limited by the length and depth of the books.

Reveiwed by Martin LaBar, Central Wesleyan College, Central, S.C. 29630

THE NEW SUPER-SPIRITUALITY, 30 pp., paperback (0.75)
BACK TO FREEDOM AND DIGNITY, 48 pp., paperback (0.95)
GENESIS IN SPACE AND TIME, 167 pp., paperback ($2.25)
All by Francis A. Schaeffer and published in 1972 by InterVarsity Press, Downers Grove, Illinois.

In the last four years Francis Schaeffer has published more than 13 books or booklets. His writings have had a tremendous impact on the evangelical Christian community to the extent that his name is probably more widely known than almost any other contemporary Christian author. In 1969 he won top book-of-the-year honors from *Eternity* magazine, and in 1972 three of his books were in the top 20 on *Eternity's* list, including the first and third of the titles above, plus *He is There and He is Not Silent.* All Christians can be thankful for the positive intellectual impact that Schaeffer has had on a wide cross section, not least of all on students around the world.

And yet it is precisely because of his wide appeal and following among those concerned with evangelical integrity that a few critical remarks on his relationship to scientific understanding must be added to those previously made by various other reviewers on the occasional shallowness of his historical and philosophical analysis. These remarks are concerned with pointing out that Schaeffer is at his most effective when dealing with personal, social, theological, philosophical and ethical problems, but that he becomes progressively less effective when he begins to treat subjects in which there is appreciable scientific content. Indeed, by the position he takes in *Genesis in Space and Time,* it is the opinion of this reviewer that he is in danger of setting evangelical Christian faith back 50 years. The above three booklets illustrate Schaeffer's effectiveness as we move from the first listed through the last.

In *The New Super-Spirituality* Schaeffer points out some of the dangers of modern movements both within and outside the Christian context. After the evident failure of the drug ideology and the New Left, Schaeffer sees young people becoming a new bourgeois who don't care who supports them as long as they have peace and affluence, or turning to transcendental mysticism with a basic denial of reason. He sees us as being in the midst of a great struggle with what he calls a "new Platonic spirituality" with two major branches: the new Pentecostalism and the new super-spirituality of groups like the Children of God. He finds the New Pentecostalism to be based only on experience with little intellectual content, and the Children of God to be practicing a stricter legalism than anything to be found in a fundamentalist church. The marks of Super-Spirituality are (1) an incorrect exegesis of I Corinthians 1,2 as though it attacked wisdom and reason per se, (2) a despising of discussion and apologetics, (3) a despising of the body, (4) the failure to ask certain questions any longer, and (5) an emphasis on the spectacular and the extraordinary with an eschatology-centered theology. Schaeffer's response for the Christian to these problems is to remember that those who are true Christians are really brothers in Christ, to emphasize content based on the propositional revelation of the Bible, to resist the trend toward the new super-spirituality, to emphasize that the whole man belongs to Christ, and to avoid overreacting by stressing the intellect or the cultural significance of Christian faith. In all of these judgments and recommendations Schaeffer seems at his best, and speaks for the mainstream of a vital and dynamic evangelical biblical faith.

In *Back to Freedom and Dignity* Schaeffer appears to be on somewhat less sure ground; not that his content is defective, but that his method and depth fall short. His criticism of Monod and Skinner is sharp but sometimes borders on the petulant. Whereas Schaeffer finds it relatively easy to criticize the non-Christian presuppositions and conclusions of these men, he does not find it easy to provide significant Christian alternatives. At the end of the booklet he argues that "as true Christians we must be ready," but he doesn't tell

how to face the reality of the situations Skinner is facing without falling into the pitfalls that Skinner is subject to. Without taking scientific data into account, it is relatively easy to dismiss anti-Christian conclusions, but it is considerably more difficult to interpret those same data in a wholly Christian context. Schaeffer's sources are strange; in dealing with scientific problems one might well be expected to use basic scientific sources, but Schaeffer has chosen to base his arguments on reports from the *New York Times, Newsweek, Time* and *Look*. Before attacking Skinner, Schaeffer devotes considerable space to attacking Francis Crick which begins with the *ad hominem* statement that "Francis Crick is an atheist; he hates Christianity and would do anything to destroy it." Schaeffer then finds ominous undertones in Crick's wondering whether someone who believes in astrology ought to be at a university, in Crick's desire to know what portion of mental health is genetically determined and what portion depends on the environment, and in Crick's concern that our success in medicine is having for its main purpose "to make the world safe for senility."

Schaeffer apparently does not think in terms of the possibility of complementary scientific and theological descriptions of man, that man can be both a machine and a unique creature made in the image of God. He confuses scientific determinism with total determinism in a way not greatly different from that supported by the men he argues against. They think that scientific determinism demands total determinism; he argues as if the admission of scientific determinism is tantamount to admitting total determinism. Schaeffer leaves us, therefore, not knowing what to do before the abundant evidence that "the source of man's hungers, drives and needs lies . . . (at least partially) . . . in the brain's circuits—in the mechanism of man." That "God made the human brain" is not sufficient argument for man not to try to improve it; God also made the human body, but Christians hardly feel that medicine is out of place.

With regard to Skinner, Schaeffer avoids the pitfalls of supposing that there is *no* chemical or psychological conditioning, but he argues that man is "not only the product of conditioning" because "man has a mind; he exists as an ego, an entity standing over against the machine-like part of his being." But what does "standing over against" mean? What are the boundaries of the ego and of "the machine-like part?" Somewhat curiously Schaeffer speaks against "pattern drills" in language teaching because they are based on a behavioristic approach; but surely "patterning" has been found to be an effective approach in some areas—the instilling of good habits is a way we would all favor some kind of patterning. There is no question that Schaeffer is right in attacking that view of man which reduces him to only a machine, but he is much less effective in showing how Christians can be faithful in the real world, not by just abhorring and regretting developments.

It is in *Genesis in Space and Time*, however, that Schaeffer's lack of feeling for science leads him to suppose requirements for his biblical conclusions that might well lead to a crisis in the relationship between scientific understanding and evangelical Christian faith. One reviewer describes the book as one in which Schaeffer avoids the problems of science; if this is so he avoids them only by ignoring science completely. For this is the book in which Schaeffer reveals his treatment of the first eleven chapters of Genesis—that one area of the biblical record about which battles between science and Christian faith have been waged for half a millennium or more. His biblical conclusions with regard to the meaning and significance of these chapters are unassailable; how regrettable it is, therefore, that he feels a particular dogmatic interpretation is required to defend his conclusions. Whereas his approach may be viewed as philosophically inevitable in the light of his consistent emphasis on unrestricted propositional revelation, it is still a shock to read it.

In no sense would we have any cause to disagree with Schaeffer when he argues that these chapters teach us that " 'in the beginning' the personal was already there," that "because He is infinite, He created originally out of nothing," that " God by fiat brought the world into existence," that "the Bible gives us true knowledge although not exhaustive knowledge," that Genesis 1 and 2 are complementary, that "without choice the word *love* is meaningless," that "man *was* and *is* a sinner," that "man as he stands since the Fall is not normal, and consequently the solution must be appropriate to what we know to be the cause of his problems and his dilemma."

How unfortunate it is, therefore, that Schaeffer intransigently presents these conclusions as *requiring* that one also believe that these opening chapters of Genesis are to be viewed completely as normal history, the same kind of history as we speak about ourselves or as records concerning Abraham, David, or Jesus Christ; that God's subsequent creative acts after the initial creation by fiat must also be interpreted as fiat acts; that the Bible is propositionally true where it touches on the cosmos; that God created man by fiat by a specific and definite act; that the historicity of Adam is essential to the entire structure and strength of Christian faith; that what happened in the Garden of Eden was a normal space-time historic event. Such statements could be multiplied further. At every point Schaeffer insists on as dogmatic what cannot by its very nature be dogmatically maintained. Christians have learned very slowly the penalty of insisting on eventually indefensible dogma, where a position open to various possibilities but holding fast to the content of biblical revelation is far preferable.

This is a sufficiently important book that a few other features might well be mentioned. A regrettable insensitivity to words occurs on page 30 which twice speaks of man's despair as his "blackness." On page 93 Schaeffer remarks that "it seems clear that if man had not rebelled there would not have been as many children born." On page 105 Schaeffer speculates that the animals slain in Genesis 3:21 "were the first animals to die." He does not believe that the genealogies can be used to date early events in earth's history, and states that "prior to the time of Abraham, there is no possible way to date the history of what we find in Scripture." He is not dogmatic about the meaning of Genesis 6:1,2 but admits seriously the possibility of fornication between angels and human women. Again he is not dogmatic about the universality of the Noahic flood, but he is strongly in favor of a universal interpretation. As a semantic device to emphasize the supernatural sovereignty of God over the universe, Schaeffer repeats that God is able to "act into" the machine of the universe. It is difficult to know exactly the model

that Schaeffer intends, but the language implies a universe which can get along without God's activity into which God can act upon will. Such a view does not do justice to the full biblical revelation of the complete dependence of the universe moment by moment upon the free activity of God for its very existence. There is no machine of the universe for God to act into; there are only modes of God's free activity.

Reviewed by Richard H. Bube, Department of Materials Science and Engineering, Stanford University, Stanford, California 94305

(Dr. Schaeffer has requested that this review be responded to by the inclusion of quotations from the Appendix to Genesis in Space and Time, *which we are happy to include as follows.*

There may be a difference between the methodology by which we gain knowledge from what God tells us in the Bible and the methodology by which we gain it from scientific study, but this does not lead to a dichotomy as to the facts. In practice it may not always be possible to correlate the two studies because of the special situation involved, yet if both studies can be adequately pursued, there will be no final conflict. For example, the Tower of Babel: whether we come at it from biblical knowledge given by God or by scientific study, either way when we are done with our study, the Tower of Babel was either there or it was not there. The same thing is true of Adam. Whether we begin with the conceptual apparatus of archaeology and anthropology or whether we begin with the knowledge given us in the Bible, if it were within the realm of science's knowledge to do so, in both cases we would end with knowledge about Adam's bones. Science by its natural limitations cannot know all we know from God in the Bible, but in those cases where science can know, both sources of knowledge arrive at the same point, even if the knowledge is expressed in different terms. And it is important to keep in mind that there is a great difference between saying the same thing in two different symbol systems and actually saying two different exclusive things but hiding the difference with the two symbol systems. What the Bible teaches where it touches history and the cosmos and what science teaches where it touches the same areas do not stand in a discontinuity. There indeed must be a place for study of general revelation (the universe and its form, and man with his mannishness), that is, a place for true science. But on the other side, it must be understood that there is no automatic need to accommodate the Bible to the statements of science. There is a tendency for some who are Christians and scientists to always place special revelation (the teaching of the Bible) under the control of general revelation and science, and never or rarely to place general revelation and what science teaches under the control of the Bible's teaching. That is, though they think of that which the Bible teaches as true and that which science teaches as true, in reality they tend to end with the truth of science as more true than the truth of the Bible. . . .

Words have become so devalued today that we often have to use cumbersome terms to make what we mean understood. The word *fact* does not necessarily mean anything anymore. *Fact* can just mean upper-story religious truth, and therefore we have to use an awkward term like *brute fact*. In this particular case, we are fortunate because the liberal theologians themselves use the term *brute fact* for what they *don't mean* by facts. The historic Fall is not an interpretation: It is a *brute fact*. There is no room for hermeneutics here, if by hermeneutics we mean explaining away the *brute factness* of the Fall. That there was a Fall is not an upper-story statement—that is, it is not *in this sense* a "theological" or "religious" statement. Rather, it is a historic, space-time, *brute fact*, propositional statement. There was time, space-time history, before the Fall, and then man turned from his proper integration point by choice, and in so doing there was *moral* discontinuity; man became abnormal.

In speaking of *facts* and *brute facts*, we are speaking of facts in the space-time sense, that which is open to the normal means of verification and falsification. As I stress in the Appendix to *The Church before the Watching World*, this does *not* mean they are then to be taken as sterile facts. These biblical facts are facts in past history, but they have, and should have, meaning in our present existential, moment-by-moment lives.

Furthermore, in speaking of the Bible's statements as propositional truth we are *not* saying that all communication is on the level of mathematical formula. There can be other levels (for example, figures of speech or the special force of poetry); but there is a *continuity*—a unity not a *discontinuity*—between these "other levels" and a flow of propositions given in normal syntax and using words in their normal definition, and this is a continuity which reason can deal with. Take an example outside of the Bible: Shakespeare's communication with his figures of speech is a much richer human communication than is mere mathematical formula. The "other levels" (for example, his figures of speech) add enrichment. Yet, if, as in far-out modern prose and poetry, there are only, or almost only, figures of speech, with no adequate running continuity that can be stated in propositional form using normal syntax and words with normal meanings, no one knows what is being said. As a matter of fact, some modern writers and artists deliberately work this way so that this will be the case. Their work becomes only a quarry for subjective experiences and interpretations inside of the head of the reader or viewer. The early chapters of Genesis quickly come to this place if they are read other than as in propositional form using normal syntax and words in their normal meaning. As an example, Paramhansa Yoganada did this in his book *Autobiography of a Yogi* and most easily turned these chapters into a powerful Hindu tract.

The reviewer responds that there are at least three critical issues for the Christian in these areas:

1. *Is all "natural" activity the activity of God, or is God's activity to be found and experienced only at special occasions?*
2. *Does a description in natural categories eliminate a theological description, or is it not rather the case that* both *descriptions are complementary and required?*
3. *If a Christian must choose between "safe" apologetics and "dangerous" truth, which is he constrained to choose?)*

A Second Review of *Genesis in Space and Time*

This book by Francis A. Schaeffer traces the "flow of biblical history" through the first eleven chapters of the book of Genesis. It is quite broad in scope, touching briefly on such topics as metaphysics, morals, and epistemology. (His book *He is There and He is Not Silent,* 1972, IVP, covers these topics in more detail.) But the core of the book is involved with the presentation of biblical anthropology, theology proper (i.e. doctrine of the Trinity) and biblical hermeneutics.

His hermeneutical principles are quite refreshing. Holding that the Scriptures are the Word of God, he says "the early chapters of Genesis are to be viewed completely as history." He holds to this principle, because the "mentality of the whole Scripture . . . is that creation is as historically real as the history of the Jews . . ." (p. 15).

It is not surprising then that he considers Adam and Eve and the Fall to be historic persons and events respectively. The early chapters of Genesis certainly come across as being historical.

But where Scriptures do not speak unequivocally, neither does Schaeffer. For example, the meaning of "day" in the creation account is left open for discussion. Furthermore, the geneologies of Genesis 5 and 11 are not to be taken as chronologies. (They do not claim to be.) Therefore, Schaeffer can accept nearly any age for the antiquity of man. If I understand him correctly, he would agree with B. B. Warfield when he said:

> . . . for aught we know instead of twenty generations and some two thousand years measuring the interval between the creation and the birth of Abraham, two hundred generations, and something like twenty thousand years, or even two thousand generations and something like two hundred thousand years may have intervened. In a word, the Scriptural data leave us wholly

> without guidance in estimating the time which elapsed between the creation of the world and the deluge, and between the deluge and the call of Abraham. So far as the Scripture assertions are concerned, we may suppose any length of time to have intervened between these events which otherwise appear reasonable. *The Antiquity and Unity of the Human Race PTR* IX (1911) p 10

Much of what Schaeffer says can also be traced to the writings of Professor William H. Green of Princeton; *The Pentateuch Vindicated from the Aspersion of Bishop Colenso* (1863) and an article in *Bibliotheca Sacra,* April 1890.

Of course, he substantiates these views from Scripture. Many New Testament verses plead implicitly, if not explicitly, for a "literal space-time fall" by Adam and Eve. As usual, once one part of Scripture is attempted to be explained away, the rest of it soon topples. If Adam did not truly represent mankind at the fall, what basis have we to claim that Christ Jesus truly represented His people in His "substitutionary" death? If the atonement is not substitutional, what happens to the justice and holiness of God? And so forth. Where Scripture speaks, we must; where it is silent, there we too should be silent.

In the book, Schaeffer discusses the various topics included in Genesis 1-11. Creation heads the list, followed by a discussion of the Trinity and the concept of origins. A chapter on the "Goodness of Creation" posits itself as a starting point for a discussion of where history is going. The Fall is discussed, along with its resulting separations: God from man, man from himself, man from man, man from nature, and nature from nature. However, man still is made in the image of God, and, therefore, has value and dignity. As fallen, however, he needs redemption, so that salvation history along with its two seeds, the Godly and the ungodly, begins its course. While the Godly seed is always present, at the time of Noah it evidently had diminished to only eight people, as that is how many were preserved by God during the flood. Schaeffer believes the flood was universal (especially with respect to the destruction of mankind. See Genesis 7:23, 9:15). However, this doctrine is not to be taken as a test for orthodoxy.

In his discussion of Noah's faith, Schaeffer states, "faith is standing against what is seen at the moment, and being willing to be out on the end of a limb in believing God." This, of course, is not a blind leap in the dark. It is simply taking God at His word in spite of the prevailing circumstances or philosophies. I feel this is exactly Schaeffer's position when he takes the early chapters of Genesis as history. It may not be popular, but it is taking God at His Word. We all need to do this more. It is all too easy to change our beliefs to fit the current scientific philosophies. Of course, at times we may have to change our interpretation of certain passages of scripture. (cf. C. Hodge's discussion of this is *Systematic Theology* I pp. 57f, 170f, 571.) But, certainly, not until there is a least a well-defined, agreed-upon theory that does no violence to Scripture should we do this.

The book concludes with a brief look at Genesis 8-11. The covenant made with Noah is discussed, along with the covenant mandate of capital punishment for murder. After a discussion of the tower of Babel, the book ends with a section entitled "The Flow of History: The Significance of Man". The importance of a historical interpretation of Genesis is stressed; without such an interpretation there would be no basis for man's quest for significance. While we may agree with some in claiming that man is dead, we must affirm that by the power of the Holy Spirit he can be made alive unto faith and repentance.

Reviewed by David E. Laughlin, Research Associate, M.I.T., Cambridge, Massachusetts.

Would You Give This Woman an Abortion? Christian Opinions

For test cases see pages 109, 112, 115, 118, 121, *and* 124.

Copies of these case histories were sent to groups, each of 24 persons, who were consultant obstetricians and gynaecologists, general practitioners, ministers of religion, well educated lay people and clinical medical students—all from Christian denominations with a conservative evangelical position. A control group was also set up by sending these histories to ministers and clergy of Anglican, Methodist, Presbyterian, "Free Church," and Lutheran communions in England. Few if any significant differences between groups were found. The figures given below represent the percentage approving abortion, at least under some circumstances, averaged over all groups above.

Case	*Page This Issue*	*Percentage Favoring Abortion*
1. (Mrs. B.)	109	86
2. (Mrs. G.)	112	36
3. (Mrs. C.)	115	3
4. (Mrs. A.)	118	88
5. (Miss L.)	121	25
6. (Miss I.)	124	68

All of this material has been reprinted from *Abortion: The Personal Dilemma* by R.F.R. Gardner, Wm. B. Eerdmans Publishing Co., Grand Rapids, Michigan, 1972). Used by permission.

An informal poll of 16 *Stanford University undergraduates in the final session of a Seminar on "Issues in Science and Religion" (it so happened that most students had an evangelical Christian background) were strikingly similar: Mrs. B.* (73), *Mrs. G.* (43), *Mrs. C.* (12), *Mrs. A.* (80), *Miss L.* (20), *and Miss I.* (81).

Descartes deduced seven rules of collision (from the law of constancy of momentum) and said that their demonstration was so certain that, if experience would seem to prove the contrary, "we would be obliged to trust more in our reason than in our senses." Unfortunately, six out of seven rules, as well as his version of the fundamental law, turned out to be false.

R. Hooykaas
Religion and the Rise of Modern Science, Eerdmans (1972), p. 43

Responses on Body and Soul

After reading the article on *The Concept of the Soul in Psychology and Religion* by J. K. Howard (*Journal ASA* 24. 147 (1972)) I find myself confused and baffled by his brief treatment of the intermediate state between death and the resurrection. The unqualified statement that ". . . any future state must be peopled by real beings and not incorporeal spirits" is also confusing. Certainly God is an incorporeal spirit—is he therefore not a real being? The angels are pure spirits—are they not real? (John 4:24; Hebrews 1:7, 14).

The emphasis on the reality and importance of the bodily resurrection as the true and ultimate fulfilment of human destiny is surely Biblically sound. But what does the author of the article make of such Scripture texts as Hebrews 12:23 ("the spirits of just men made perfect"), Luke 23:43, ("Today shalt thou be with me in paradise"), II Cor. 5:8, ("willing . . . to be absent from the body, and to be present with the Lord"). . .?

Attempts such as those of author Howard to eliminate the concept of "the soul" and even the term "soul" from Christian vocabulary need to be carefully guarded lest they seem to support the materialism which is so widespread today. I am sure that Howard does not believe that bodily death is the end of a human life. He seems to prefer to speak of "the preservation of personality" rather than using the common expression "the immortality of the soul." It may be another way of saying the same thing, but I find it vague and likely to be misleading.

Johannes G. Vos
Professor of Biblical Literature
Geneva College, Beaver Falls, Pensylvania

May I please indicate an important error in the article, "The Concept of the Soul in Psychology and Religion," (*Journal ASA* 24, 147 (1972)) which reads that God breathed into Adam's nostrils the "breath (*ruah*) of life; and man became a living soul (*nepes*) (Gen. ii:7,)." The Hebrew text states that God breathed into Adam's nostrils the *nishmath chayim;* not *ruah.* Also the proper pronunciation of the parenthetical *nepes,* should be *nephesh.* The manner of pronunciation is minor, but the use of *ruah* for *nishmath,* is contrary to the Hebrew text.

Actually there are two Hebrew words for "soul:" *nephesh,* which Adam became upon God's giving him the *nishmath chayim,* and *neshamah,* the construct case which occurs in the above phrase (*nishmath chayim*). It is true that *nephesh* is used as the vital principle of both animals and men and other living things. But *neshamah* is something which God gave to man and not to other living things. It distinguishes man from all other living things.

In his Introduction, Dr. Howard says that biblical data "do not provide any grounds for the traditional 'dipartite' or 'tripartite' views of man."

However, Hebrews 4:12 says the Word of God is able to cause "the dividing asunder of soul and spirit . . ." This is in agreement with I Thessalonians 5:23, which says that the believer's "whole spirit and soul and body (may) be preserved blameless unto the coming of our Lord Jesus Christ." In the light of this last quotation, it is true as Dr. Howard says that "man's redemption is a bodily event . . . any future state must be peopled by real beings and not incorporeal spirits." The dead will be raised and given "resurrection bodies." Jesus appeared in a resurrection body of "flesh and bones." (Luke 24:39).

At the top of that same column Dr. Howard says that the Christian view is that "man is a unity." That is true, but we must beware that we do not fall into the error of rabbinical Judaism, which postulates that God is a "unity" but denies the reality of God's being a trinity. They make the mistake of using the Hebrew *yachid,* meaning a "unit," instead of the Biblical *echad* in Deuteronomy 6:4, and Genesis chapter 1, and in other places; where *"echad"* plainly indicates a "unity" based upon a "plurality." Man and woman become one (*"echad"*). Day and night become one (*"echad"*) day, composed of darkness and light.

Dr. Howard says "it is impossible to distinguish between *psyche* and *pneuma* as representative of man's personality." But the Bible says that they are different and are both included in man's personality.

He also says, "The word 'flesh' is . . . never used as something over against *nepes* or *ruah.*" But Leviticus 17:10-14 distinguishes between *nephesh,* here translated sometimes as "life" and sometimes as "soul," and *dam* translated "blood," and *basar,* translated "flesh." Galatians 5:17-26 contrasts the "flesh" (*sarx*) and "spirit" (*pneuma*), and their fruits in the believer. So sometimes his statement *"psyche* in this context refers to the totality of man's being and not to some part of it," would be correct, and yet at other times, *psyche,* does not mean the entire man, as e.g., Galatians 5, Romans 8, Luke 10:27, I Cor. 15:24.

There is much of value in Dr. Howard's article. I enjoyed, although did not agree with everything he said. The other articles were also excellent, especially the dialogue on evolution. I agree with Mr. Moore's criticism of Dr. Cuffey's position.

Again thanking you for the Journal, and for your courtesy in considering this rather lengthy letter.

Rev. F. W. Haberer
1845 *S. Highland*
Clearwater, Florida 33516

Creation and the Word

The writers of the New Testament offer very little about the origin of the universe. Paul wrote a few notes about the principle of creation and these are scattered about in his various letters. However, it was John who focused his thoughts on this matter and related them to us in the prologue of his gospel as follows:

> "In the beginning was the Word: the Word was with God and the Word was God. He was with God in the beginning. Through Him all things came to be, not one thing had its beginning except through Him. All that came to be had life in Him and that life was the light of man, a light that shines in the dark, a light that darkness could not overpower."

In this one short paragraph John seems to have captured the essential elements of the Genesis account of creation. This New Testament account should have substantial meaning for persons who believe that Jesus is the Son of God. John and Jesus spent at least three years together. As practicing Jews they knew Scripture and it seems likely that they talked about the Genesis account at one time or another. John pondered these things for many years before writing his gospel. In comparison, the Genesis account was written by an unknown author or authors with a less direct contact with the source of creation.

John provides the essence of his philosophy of creation without using the notion of time. His perspective does not contradict scientific theories based on design and evolution in the universe. Evolution actually deals with the development of matter in time rather than with origins, and leaves much room for John's creation philosophy. The scientific concepts of development and origin of species overlap. That is, the development of matter and energy to more complex forms leads to new designs in nature, or to newly defined species.

John also gives us an insight into the involvement of the Word in creation. There is an immense gap in nature between the way humans use words to express ideas and the way animals communicate. Many scientists, philosophers, and epistemologists have some truth and wisdom to offer about this unique and complex phenomenon; i.e., a human being's ability to communicate and create with words. Our use of words is one of the ways we reflect the magnificance of the Creator of the universe.

Anthony J. Verbiscar
491 *Crestvale Drive*
Sierra Madre, California

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