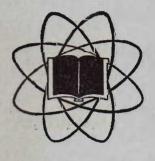


Journal

of the

American Scientific Affiliation



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

June, 1962

Vol. 14

No. 2

The American Scientific Affiliation

(Incorporated)

The American Scientific Affiliation was organized in 1941 by a group of Christian men of science. The purpose of the organization is to study those topics germane to the conviction that the frameworks of scientific knowledge and a conservative Christian faith are compatible. Since open discussion is encouraged, opinions and conclusions are to be considered those of the authors and not necessarily held by others in the organization.

PUBLICATIONS

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

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

Evolution and Christian Thought Today is a 221-page symposium by thirteen authors, expressing the attitudes of Christians on this subject a century after Darwin's writings.

EXECUTIVE COUNCIL

Henry D. Weaver, Ph.D., President 215 Carter Avenue Goshen, Indiana

Walter R. Hearn, Ph.D., Vice-President
Department of Biochemistry and
Biophysics
Iowa State University
Ames, Iowa

V. Elving Anderson, Ph.D., Secretary-Treasures 1775 North Fairview Avenue St. Paul 13, Minnesota J. Frank Cassel, Ph.D.
Department of Zoology
North Dakota State University
Fargo, North Dakota

Robert D. Knudsen, Ph.D. 1341 Osbourne Avenue Roslyn, Pennsylvania

H. Harold Hartzler, Ph.D.

Executive Secretary

Ex-officio Council Member

414 South Broad Street

Mankato, Minnesota

The Journal of the

American Scientific Affiliation

(Copyright American Scientific Affiliation 1962)

Table of Contents

Vol. 14	June, 1962	No. 2
New Associate Members		64
New Members		58
Book Reviews		56
Irving W. Knobloch, Ph.D.		
		55
Russell Heddendorf, M.A.		
Sociology		53
Stanley E. Lindquist, Ph.D.		
Psychology		52
Physiological Changes With Popula Marlin B. Kreider	ation Increase	49
David O. Moberg		

The Journal of the American Scientific Affiliation is published quarterly, March, June, September, and December by the American Scientific Affiliation. The publication office is located at 414 South Broad Street, Mankato, Minnesota. The subscription price is \$3.00 per year. Single copies may be obtained at a price of 75c each. Copies of back issues may be obtained at the price of \$2.00 per volume. Send all communications regarding editorial matters to the editor.

Printed in U.S.A.

Cultural Relativity and Christian Faith*

DAVID O. MOBERG**

The belief that moral standards, norms of conduct, and social institutions are not absolute but relative to time, place, culture, and historical circumstances is a basic orientation of contemporary social scientists. This cultural relativity is linked with the "doubting Thomas" attitude which is at the core of empirical science. It is accompanied by skepticism about the possibility that any particular set of ethical values, Christian or non-Christian, can ever be universal to all mankind.

Various definitions of cultural relativity may be found in social science literature. As accepted by most anthropologists, the concept means that "the values expressed in any culture are to be both understood and themselves valued only according to the way the people who carry that culture see things." (47, p. 144). The gist of it is that "judgments are based on experience, and experience is interpreted by each individual in terms of his own enculturation." (25, p. 63). Its essence lies in the observation "that every institutional value is of no value somewhere else and that every institution we do not value is valued somewhere else." (37, p. 384). This anthropological usage is accepted, usually without reservation or qualification, by sociologists and by many, perhaps most, other social scientists.

The concept of relativity thus runs through all the social and behavioral sciences. It is implicit in political science which recognizes that there are differences between political structures and functions in time as well as in place, that each nation has its own set of political institutions, and that even if two nations have the same basic form of government their practical functioning differs. Historians and economists similarly reflect cultural relativity in their interpretations of social and economic history and institutions. Psychology emphasizes individual differences, implying that each person has unique abilities and limitations and hence should be reared and should live according to a unique set of standards somewhat different from those of every other individual. Cultural relativity is the most conspicuous of all in the sciences of sociology and cultural anthropology which discovered early in their history that standards of good and bad vary greatly in time and place. That which is considered "right" according to the values of one group of people may be considered "wrong" according to the standards of another.

History and Implications of Cultural Relativity

Cultural relativity is as old as social science. References to it may be found in writings of the ancient Greek classicists, and it probably contributed to the ethical opportunism of Machiavelli's *The Prince* in 1513 A. D. Its use as a specific concept in modern science goes back, however, to the work of researchers and scholars only within the past century. As knowledge of

peoples other than one's own accumulated, it was observed that standards of right and wrong differed widely from one culture to another. By the beginning of this century it was obvious from ethnological research that scarcely a sin in the Decalogue had not been regarded either as a virtue or as an allowable practice among a portion of mankind. To paraphrase Lea's presidential address to the American Historical Association in 1903, even a very slender acquaintance with the history of ethics was enough to establish the fallacy of the commonly accepted premise that there is an absolute and invariable moral code by which men of all ages and of all degrees of civilization are to be tried and convicted or acquitted. Standards of right and wrong are modified and adapted to what are regarded at the moment as objects which are the most beneficial to the individual or to the social organization (34, pp. 56, 57). Thus the concept of cultural relativity led to ethical relativity and became one of its major foundations.

Among those who had the greatest influence in developing and disseminating the ideas of cultural and ethical relativity were William Graham Sumner of Yale University, L. T. Hobhouse of the University of London, and Edward Westermarck, who worked both in England and Finland. Sociologist Sumner, whose career had begun as a Protestant clergyman, published his classical work, Folkways, in 1906. In it he compared the customs of a large variety of cultures, chiefly preliterate and rural, and arrived at certain conclusions about the nature and characteristics of institutions, laws, fads, fashions, customs, etc. He noted the great variability of group habits (folkways) among the people described in ethnological reports and devoted much attention to moral standards or mores, which are folkways to which the moral judgment has been attached that conformity is essential to group survival. His outstanding conclusion was that "the mores can make anything right." (56, Chap. 15). This is a major theme of modern sociology, although in all fairness it must be said that many Roman Catholics and other Christians disagree with it or else reinterpret it as simply a descriptive scientific statement of what has been observed about the concepts of right and wrong held by various groups of people.

*Revised and expanded version of "The Problem of Cultural Relativity," paper presented at the 15th annual convention of the A.S.A., Seattle, Aug. 25, 1960. Anthropologists Claude Stipe and George Jennings, members of the Publications Committee of the A.S.A., and numerous other friends and colleagues have contributed directly and indirectly to the improvement of this paper. Errors and misinterpretations which remain are, of course, solely the author's responsibility. More references are provided than might be necessary so that others who wish to study the subject will have a good starting point for such work.

**Por. Moberg is Professor of Sociology and Chairman of

**Dr. Moberg is Professor of Sociology and Chairman of the Department of Social Sciences at Bethel College, St. Paul, Minnesota.

The first edition of Hobhouse's Morals in Evolution also appeared in 1906. Its purpose was "to approach the theory of ethical evolution through a comparative study of rules of conduct and ideals of life." (27, p. v). It was concluded that the "furtherance of the collective life of humanity becomes the standard by which moral rules and social institutions are to be judged." (27, p. 600). Ethics, Hobhouse believed, were founded on deep-lying instincts and a humanitarian idea. Supernatural religion should not be the basis for ethics, but ethics provides the test for the value of each religion and creed. The task of sociology is to aim at a scientific determination of the functions institutions fill in the life of humanity. Its findings would be a chief basis for spiritual progress by which achievements of one epoch become the basis for a fresh development toward salvation, which is within and for this life and must focus on society as much as or more than upon the individual (27, esp. pp. 600-608, 635). Hobhouse's ideas contributed to ethical relativity through their stress upon value-subjectivism, in which the mind is dominant in the evolution of morals, as well as through their reflection of cultural relativity.

In the very same year Westermarck's *The Origin and Development of the Moral Ideas* (62) appeared. Based upon anthropological findings about customs, laws, and institutions, the conclusion reached was that moral judgments are based ultimately on emotions. This was elaborated in another well-known work, *Ethical Relativity* (61), which appeared in 1932. Westermarck's main contention was that the moral consciousness is based ultimately on emotions, the moral judgment lacks objective validity, and the moral values are not absolute but are relative to the emotions they express.

The social sciences thus provided a major foundation for the doctrine of ethical relativism which denies any universal ideal. Opposed to absolutisms of all kinds, including those of religion, relativism denies that there are any objective, unconditionally valid standards of right and of good which apply in any place and at all times. It is the view "that the rightness of an act and the goodness of a person or an object depend upon the interpretation or point of view of some individual or group toward them, and hence may vary from person to person." (58, p. 29). There are no true principles of morality because there are no objective standards. Thus radical empiricists, who hold that a word has no real or cognitive meaning unless the thing to which it refers can be experienced directly, believe that, since the word ought is not what is, "ought" is meaningless. Supported by strict naturalism and the logical positivists who hold that ethical statements do not refer to any objective facts but express merely the feelings and emotions of men, ethical relativity claims that what is right at one place is indeed wrong at another, for beyond human thinking and feeling there are no universal objective standards (58, pp. 29-33).

The theoretical orientation of cultural relativity

affected not only moral rules and codes; even God Himself was reduced to a projection of man or a "collective representation" of society. He no longer was seen as the omnipotent Creator, the Lord of the universe, and the Judge of all men. Instead He became merely a symbolic figure standing for the social cohesion, integration, or solidarity of the group (16). Since each group has its own conceptions of deity, there are many gods, none of which is universal and all of which are "true"—but true only in the sense that whatever men respond to as true is for them real and true in terms of the ideological and practical consequences of such belief and hence in terms of significance to individual and social life.

Modern cultural relativity in the social sciences is based upon the obvious uniqueness of particular cultures, the observation that even if there were universal moral laws they would not mean the same from one culture to another, and the nature versus nurture struggle against reductionist philosophies that would reduce explanations of what and how a man behaves to biological, ecological, or psychological categories without an emphasis upon acquired or learned dimensions of behavior (17, pp. 202-246). Some anthropologists have used its conclusions about variations in value-premises between cultures as the basis for describing entire cultures in value terms. Ruth Benedict, for instance, sees differences between cultures as consisting essentially of irreducibly different value-premises (6). The national character school of anthropology is strongly inclined toward this position.

Cultural relativity basically

is a *philosophy* which, in recognizing the values set up by every society to guide its own life, lays stress on the dignity inherent in every body of custom, and on the need for tolerance of conventions though they may differ from one's own. . . Emphasis on the worth of many ways of life, not one, is an affirmation of the values of each culture. (25, pp. 76, 77).

This philosophy is a direct outgrowth of the application of reason and modern social science to man's values. It affects the value-premises of an ever-increasing number of literate people. Since it is largely a product of social science, it is implicitly accepted as a basic postulate by many social scientists, and has clear implications for all Christians as well as for Christians in science, it is a subject worthy of much study in the American Scientific Affiliation.

Conflict with Christianity

Cultural relativity, as we have seen, "leads to moral relativism, which claims that each of the many moral, ethical, and religious systems has its validity. This point of view implies that religious believers who claim to have a corner on truth are simply manifesting ethnocentrism or bigotry." (28, p. 324). Relativism thus tends to undermine established religious values and sometimes becomes a substitute for traditional religious views.

As man applied science and reason to the analysis of

his values, it was inevitable that the standards of Christian groups should be included in his study. Obviously these standards varied greatly, even though most claimed the same Bible as the source of their values and believed their principles were very clearly based upon its teachings. From such observation, it was a short step to analysis of the Scriptures themselves and of the values incorporated in them from the perspective of the cultural settings in which they were produced or, as the social scientist is likely to say, the cultures which produced them. It was easy to note how certain of these values changed in time and varied with circumstances. A logical conclusion was that the Bible is simply another manmade book, clearly and solely reflecting its cultural origins, in no way transcending them (60).

To all this fundamentalist Christians typically responded with suspicions that modern social science was undermining the faith, that it was inherently atheistic, that it did not give man his proper dignity as God's highest creation for it treated him as merely another animal, and that it was a camouflage for creeping godless socialism. Christian students avoided and Christian schools refused to offer courses in sociology and anthropology until some of these obstacles were overcome and the positive values of these disciplines in Christian service became evident. Even though cultural relativity broke down many arguments of the social evolutionists who saw western civilization as the pinnacle toward which all human society was moving, it was highly suspect for the other problems it created or accentuated.

Another area of the warfare of science and Christianity had emerged. Christians insisted that they had an absolute set of standards clearly presented to all peoples in the Bible. Their denominations and sects could not agree on many of its specific details, but each insisted its own interpretations were the true teachings of God's Word. Cultural relativity was denounced and moral absolutism proclaimed, presumably on the basis of clear teachings in the Bible. Yet the relativist strengthened his case by examining the development and current status of Christianity itself:

Cultural Relativity in Christianity*

The history of Christianity itself can be used to support the principles of cultural and moral relativity. When modern physical sciences proved that the earth was not flat and that it was not floating upon water, as Psalms 24:1-2 and 136:6 implied, Christians reinterpreted these passages as figurative, not literal, descriptions of the earth. The fixity of the earth (Ps. 93:1b), rainfall coming from the windows of heaven (Gen. 7:11; Ps. 148:4), the sky as a tent or a hard upturned bowl (firmament) arching over the flat earth (Gen. 1:6-8; Job 37:18; Ps. 104:2; Isa. 40:22), and various other concepts of the material universe were reluctantly given up as knowledge of the universe grew. Beliefs in evil spirits as the cause of illness, in the creation period as consisting of six 24-hour days, in the universality of the deluge, and in the creation of man in the year 4004

B. C. or only a few centuries earlier have lingered longer. The relativity of man's interpretations of the Bible to his culturally-limited knowledge (including his science) has become evident from these historical events in science-religion relationships.

Among those who most strongly combat relativity on the verbal level are the dispensational fundamentalists. In practice, however, they have made greater adaptations of Scripture than most other Christians by their stress upon seven different periods of time in each of which "man is tested in respect of obedience to some *specific* revelation of the will of God." (51, p. 5, note 4). They and many other Christians unwittingly apply the principles of cultural and ethical relativity in their interpretations of the Bible itself. Many of the divisions and schisms of Christendom can be related to culturally relative behavior and culture traits believed in by some and rejected by others.

Sectarian groups often cling to outmoded customs which were widely practiced in earlier centuries. These customs become badges of distinction which solidify ingroup sentiments and identify those who are "separated from the world." Some, for instance, continue to practice footwashing as an ordinance of the church because Jesus commanded the disciples to follow His example of washing their feet (John 13:14-15). Most Christians see this as related to a culture in which sandals were worn while trodding dusty paths in the heat of the summer sun. For cleanliness and especially for soothing the weary feet, footwashing was a very appropriate act of hospitality and love. Today, they say, we need not practice this custom, for we do not normally wear sandals, we walk relatively little, and modern plumbing conveniences make it very easy to bathe one's own feet. They say the humility of Christ is the key principle of this example; we must follow Him in this respect, in honor preferring one another.

Other examples of Scriptural principles which are treated from the perspective of an implicit cultural relativity by most Christian groups are easy to find. For example, Christians are instructed at least five times in the New Testament to greet one another with a holy kiss (Rom. 16:16; I Cor. 16:20; II Cor. 13:12; I Thess. 5:26; I Pet. 5:14; cf. Luke 7:45 and Acts 20:37), but we recognize that the kiss has a somewhat different social meaning in America from that of Biblical cultures. It is difficult today to keep kisses "holy," and they may be interpreted by contemporary observers as indicative of homosexual irregularities. Hence one modern translator (44) has replaced "holy kiss" with "a hearty handshake" in these admonitions; even those who dislike the freedom of his translation agree with it in their practice.

Some of the most obvious culturally-linked traits are related to the position of the woman in society and in

*Throughout this paper I write to expose, clarify, and hopefully resolve a significant problem. Concrete illustrations from various religious groups (including my own) are not given to attack or condemn any of them but only to make the argument and the problem more clear.

the church. In Biblical lands and times she was considered clearly inferior to men, but in contemporary America her position approaches equality in civic, economic, family, political, and other rights and responsibilities. Most Christians no longer interpret literally the Biblical teachings that women should not pray when their heads are uncovered nor men when their heads are covered (I Cor. 11:4-5, 13), that women should not cut their hair (I Cor. 11:6, 15), that they should not braid their hair nor wear jewelry (I Tim. 2:9; I Pet. 3:3). They no longer are required to keep silent in church, asking questions only of their husbands at home (I Cor. 14:34-35). Instead of heeding the Biblical command that they should not teach (I Tim. 2:11-12), more of them than of men are teachers in the typical church, and many of them teach adult classes which include men as well as women. These do not create problems in most evangelical churches. We protect our sense of integrity by conventionalized explanations for our deviations from the literal teachings of God's Word.

Greater problems for the thinking Bible scholar are found in certain other subjects. (Neither theological interpretation of these doctrines nor evaluation of whether they are right or wrong is the chief purpose of this paper. My main concern is to illustrate how cultural relativity is present within American Christianity.) Jesus turned water into wine that was considered delicious by those who drank it (John 2:1-11). He was accused of being a drunkard because He feasted with sinners as He exerted His influence over them, calling them to repentance (Mat. 11:18-19; Luke 7:34). The Bible nowhere commands complete abstinence from all alcoholic beverages but only avoidance of certain types, of excessive use, and of drunkenness. God gave men wine that makes glad the hearts of men (Ps. 104:15). But today, in an age when natural fermentation is accompanied by distilling processes which greatly multiply the alcoholic content and when use of automobiles is impaired by even small amounts of alcohol, circumstances are different. Christians hence try to re-write into the Bible teachings about abstinence that are not directly found in it.

Slavery is not directly condemned in the Bible and seems in fact to be upheld by Paul's epistle to Philemon as well as by other passages which slave-owners stressed in the period prior to the Civil War. Similar problems arise in regard to war. The Sixth Commandment emphasizes that man shall not kill (Exo. 20:13), but, except for certain of the historic "peace churches," Christians appeal to Biblical events, historic circumstances, and a "higher good" to make exceptions for the wholesale slaughter of warfare. A "pagan sermon to the Christian clergy" criticized them because "the morality of war now dominates the curious spiritual life of the fortunate peoples of Christendom." (17, p. 199). Social science research demonstrates that on these and related topics most Christians simply reflect the moral standards dominant in their culture.

God Himself appears to have approved certain culture patterns which are unthinkable to us. Jephthah is praised as a hero of faith (Heb. 11:32), but the chief evidence of that faith was his vow to make a human sacrifice to God in the event of victory in battle and his carrying out that vow even when it meant taking the life of his own daughter (Judges 11:29-40). The levirate by which a man cohabits with his brother's widow to produce offspring in his brother's name is upheld by God in Genesis 38:7-10; the man who refused to cooperate in this activity was struck dead and gave his name to the sexual practice of onanism. Prostitution appears implicity permitted by God in such passages as Hosea 1:2 and Genesis 38:11-26. The polygamy of David and Solomon and other Old Testament characters is not condemned by God; He actually gave David his master's wives (II Sam. 12:8). Easy divorce is arranged for by God in the Mosaic code (Deut. 24:1-4)* and only later was reinterpreted by Jesus as having been permitted because of the hardness of men's hearts (Matt. 5:31-32; Mark 10:2-12).

Even belief in the existence of numerous gods can be upheld by reference to Scripture passages. Henotheism, which acknowledges the existence of many gods (typically with one for each tribe, nation, or other group), in contrast to the monotheistic belief that only one God exists, is a common perspective of the Old Testament (Ex. 12:12; 23:24, 32; Deut. 10:17; 12:30-31; Ps. 95:3; 135:5; Zeph. 2:11; etc.).

Jesus Himself violated the folkways and mores of His time and people. He ate and slept with Samaritans (John 4:40) when the average Jew of His day would not even pass through Samaria if in any way avoidable. He associated with women in public as well as in private, when a rabbi would not be seen in public with any woman and was taught that even conversation with his wife might put him in jeopardy of going to Gehenna. Jesus was considered very sinful by the religious leaders of His day, for He violated rules of ceremonial cleanliness and separation, neglected religious duties, regularly broke the Sabbath, defied tradition, and in other ways sinned against the laws of God revealed in the Scriptures as interpreted by centuries of tradition and dozens of religious scholars (49, pp. 66-109).

Ordinarily, evangelical Christians who profess to teach "all of the Bible" in their educational programs pass over such passages or the problems they present, not realizing how great indeed are the implications of such portions of God's Word. After all, we are but human. It is easy to overlook that which would not be pleasant to observe!

Cultural influences on contemporary Christian values are easy to discover. Christians in the South until very recently have almost unanimously favored segregation of the races, keeping the Negro in what they consider to be his place, while those in the North have tended

*Compared to other cultural norms of that day, however, Mosaic standards of divorce were stringent.

to hold different verbal conclusions on the subject, reflecting the values of their sub-culture. Christian farmers who secure much of their income from the raising of tobacco have a different perspective on the subject of smoking than those whose main source of income is corn or dairy products. Christian pacifism is not popular during war-time, but when people in general are alarmed about war and inclined toward pacifistic views, it is common for Christian preachers to go on record as favoring conscientious objection to military service and other anti-militaristic positions.

At one of the first church services I attended in the Netherlands the Baptist minister who had preached an evangelical sermon including reference to salvation through the blood of Christ emerged from a side door of the church with his Bible under one arm and a smoking pipe in his hand. After all, nearly all men in his nation use tobacco! Only recently, as medical reports on the linkage of smoking with cancer have been made, have Dutch Christians begun to question the practice as a possible sin. We had lived there only a few weeks when a Baptist lady came to the door selling chances on a lottery for the benefit of a Baptist church building fund. Since the nation itself sponsors lotteries as a device for governmental and welfare fund raising, they do not see gambling of this type as sinful—the cause is good! Culture traits commonly take precedence over Christian values in all lands whenever there is a clash between them.

Other inconsistencies are apparent. In I Corinthians 11:14 we read that long hair is a disgrace to a man. Yet our pictures of Jesus portray Him as a man with long hair! Regional and local variations are also evident in Christian folkways pertinent to pool or billiards, women's hair-do's and jewelry, shorts and slacks for women, movies and television, card playing, dancing, mixed bathing, roller skating, observance of the Lord's Day, dietary habits (coffee, tea, coke, pork, beer, etc.), contraceptives, and attitudes toward slang. Some minor sects still condemn the use of automobiles, telephones, buttons, and instrumental music for churches. To my knowledge no systematic comparative study of these variations has been made.

Each of the numerous subcultures present within the one American culture (cf. 19) has its own set of values. These values in our rapidly changing society are continually being modified. Changes in group concepts of what is right and wrong result at least in part from the growth of knowledge, the close contacts of diverse groups, rapid social change in general, and developments in the biological, physical, and social sciences which reveal the effects of various types of practices.

Subcultural categories in America may include the urban laboring classes, upper middle-class apartment dwellers, suburbanites, cornbelt farmers, northern middle-class Negroes, and southern sharecroppers, to mention but a few. Nationality background variations, regional distinctions, religious identifications, and edu-

cational contrasts add to the diversity of the various distinguishable segments of the population. Moral values vary between these subcultures, and they vary in time within each of them. Without research to discern what the specific subcultures are and how they are changing in time, we can present this only as a hypothesis of what might be found upon careful investigation. The subculture of urban middle-class white collar workers during the World War I era may have held values similar to those of the subculture of contemporary urban residents who have recently migrated from the rural South into northern cities, and other analogous differences and similarities might be observed. Certain groups change more rapidly than others; their values a generation ago may have been the same as the present values of slowly changing groups. Christians, reflecting their subcultural backgrounds, have contrasting ideals of what is right and wrong, righteous and sinful, proper and improper for the consecrated child of God. Denominational and sectarian divisions result in part from these moral and ethical divergencies.

Similar comparisons can be drawn between cultures. For example, there appear actually to have been different ethical standards for God's people in the period before the patriarchs from those of the time of Moses. The prophets, in turn, introduced a higher ethic which can be tersely summarized in Micah's statement, "What doth the Lord require of thee, but to do justly, and to love mercy, and to walk humbly with thy God?" (Micah 6:8). Jesus introduced the highest ethic of all—an ethic based upon the inward motivation of love. His ethic is supplemented, elaborated, and applied by the relatively precise interpretations of the New Testament epistles. (Other gradations of ethical development can be discerned in the Bible; these are only suggestive and illustrative.)

Much of the fundamentalist-modernist controversy in American religion can be traced to the slowness of fundamentalists to accept the developments of modern science, in contrast and often in opposition to the eagerness of modernists to adapt their religion to new scientific data. Other conflicts and misunderstandings between groups may be analyzed from the perspective of differential rates of social change or, in other words, in terms of such conceptual frameworks as conservatismliberalism, cultural lag, and cultural relativity. The natural history of religious groups as they change gradually from sects to denominations or churches follows a pattern of increasing acceptance of change and adaptation to change. The sect resists what it considers to be worldliness and is at war with the rest of society; the church or denomination adapts to society, accepting most of its major tenets, values, and institutions (39, Chaps. 4, 5).

Why does the application of Biblical principles to current life not result in the same specific standards? Each group insists that it has the right answers and that others who disagree are wrong. Is the Holy Spirit who

guides the Christian into truth at fault? Or do men misinterpret God's desires for their lives, confusing cultural standards for His eternal will?

The evidence used by agnostic social scientists to support their idea that religion simply reflects culture is very strong. Everywhere and at all times it indeed is conditioned by societal characteristics. Christian theology itself "is the result of a continuous dialogue between Gospel and culture," a product of culture and yet a reflection of Christ addressing every culture (52). Evangelical Christianity is no exception. Cultural relativity is conspicuously evident in it. Nevertheless, the principle of cultural relativism, even apart from strictly Christian doctrines, has many weaknesses.

Criticisms of Cultural Relativity

Cultural relativity as the basis for ethical relativism is rooted in the following syllogism:

Ethics is a cultural phenomenon,

Culture is relative,

Therefore ethics is relative (17, p. 202).

This syllogism is invalid. A difference of opinion evident in different peoples, cultural realms, and historical epochs in no way proves that the object toward which the opinion refers does not exist or is a mere semblance. Conformity with reality is the basis for the truth of an opinion, not the number of persons or groups that agree with it (26, pp. 106-112).

People are brought to see value in whatever things their local experience has suggested, and we ought to respect all cultures. However, there is no necessary "therefore" between these propositions. It cannot be proved from the premise, that all values are relative, that we ought to respect all cultures. We might just as well hate them all (3)!

In other words, there can be no question as to the fact of cultural relativity. There indeed are divergent value judgments between cultures and even between the various subcultural groupings found within heterogeneous societies. To jump from this fact, however, to the conclusion that there are or can be no objectively justifiable or true value judgments which are independent of specific cultures is to present a logically unsound argument. The descriptive observations of science neither necessitate nor imply prescriptive standards for behavior. What is and what ought to be are not by any means the same (50).

Some cultural relativists are sclf-contradictory. In their opposition to all absolutisms, they make ethical relativism, tolerance, and respect for all culture patterns a goal. In so doing, their doctrine borders on asserting an ethical absolutism. Stating that there are no universal values, they attempt to make a universal value of cultural and ethical relativism (17, pp. 202-246). "In claiming to make an objectively true statement by declaring that we are unable to attain any objective truth, this position clearly contradicts itself." (26, p. 107). To oppose the notion in the name of science,

freedom, or democracy that there is any objective norm is to admit the existence of values which can be used (presumably objectively) to arrive at truth, for science, freedom, or democracy is thus held up as an ideal! The relativistic theory itself is advocated because it is thought better to know the truth than to err—it is a value (26, pp. 112-128). When cultural relativism refers primarily to an appeal for cultural tolerance and the dignity of every body of custom as universal values, it implies a type of absolutism or empirical invariance (17).

This introduces the need to distinguish between cultural relativity as a fact, cultural relativity as a method. and cultural relativity as a moral standard by which to judge the rightness or wrongness of any act or pattern of behavior. The fact that each society has its own cultural standards of morality cannot be questioned. (Even the Bible reflects this fact in passages like Romans 2:14.) In the investigation of divergent cultures the social scientist usually must refrain from making valuejudgments as to the goodness or badness of his subject matter lest his moral evaluations create ideological blindspots or color his observation and thus bias his findings. Cultural relativity in this sense has proven to be an invaluable methodological tool which is closely related to the ethical demand of science for honesty in investigation. It is obvious, however, that this prescriptive methodological principle of empirical investigation does not amount to an ethical prescription outside the framework of the scientific method (50). As a method, cultural relativity is a doctrine more of ethical neutralism on the part of the scientist than of moral indifference. Neither the fact nor the method of cultural relativity calls for the adoption of moral or ethical relativity.

If ethical relativism were to become dominant in a society, it would lead to chaos of man's moral, cultural, and spiritual life. Men would tend to take the easiest way out of any situation. No group standards would be possible because of individual variations and the fact that, even if there were a theoretically unique set of values for each group, each person in a complex society belongs to many groups. No evaluative comparisons between groups would be possible, and there could be no evolution of morals or moral progress, for progress implies movement toward good and away from bad (58, pp. 29-33). Social unity and cooperative endeavor would be impossible, for they depend to a great extent upon shared values.

Cultural relativists often fail to distinguish between the many different types of standards of value present in any society. Some standards deal primarily with technical culture traits and have to do only with efficiency versus inefficiency. Some are symbolic, while others are non-symbolic. There are juridical, religious, scientific, technical, educational, and aesthetic as well as moral standards. To deal with any group's standards as if all had to do directly with morality is a serious fallacy (cf. 21).

Sumner, Benedict, Kroeber, and others who may be

classified as cultural relativists have implicitly condemned such features as "social waste" and "infantilism" in the cultures they studied and have affirmed certain values as superior to others (47, p. 154; 17, pp. 202-246). Indeed, the dysfunctions (undesirable, unanticipated effects) of moral relativism make even the most "objective" social scientists shy away from it. A practical result of such doctrine would be that slavery, cannibalism, infanticide, and other social patterns which are reprehensible to most people would constitute a violation of moral values only in those groups which condemn such behavior. Every group would measure itself only by its own standards. Moral anarchy in which every man would do that which is right in his own eyes could easily follow. Conflicts between cultural and subcultural groups could be settled only by negotiations and compromise leading to recognition of cross-cultural values or by a power struggle in which right is determined by might. Hence in part "the abandonment of the doctrine of untrammeled cultural relativity is a reaction to the observation of social consequences." (30, p. 663; cf. 50).

An increasing number of social scientists now believe that some phenomena are trans-cultural. Thus scientific knowledge generally has withstood efforts to make it culturally relative in the narrow sense of that term. There is no scientific knowledge which is uniquely Eskimo, Mexican, Japanese, or even evangelical Christian, although the scientific method may be applied to the study of topics which are of unique interest or applicability to such groups (17).

Similarly, some values probably are universal and ultimately may be considered "absolute" by social scientists. To use Redfield's words, "It is possible, I think, to agree that everybody passes judgment as guided by the experience he was brought up to have and recognize, and yet to assert some reasonable basis for preferring one thought or action to another." (47, p. 145). For instance, analysis of marital success in relationship to premarital pregnancy suggests that, regardless of the culture's degree of permissiveness of premarital sexual intercourse, forced marriage appears to work against marital success; a certain universal norm may be present, to some extent independent of the cultural variable (64). In like manner it has been observed that nearly every religious or ceremonial act is regarded as an obligation between groups and persons, and not only as an obligation to immortal gods. Conformity with group norms is something individuals give to each other in the discharging of their obligations to each other. Therefore it can be hypothesized that reciprocity is a moral norm that is one of the main components of a universal moral code (20).

Human similarities are embedded in the chromosomes and reflected in man's daily activities of labor, eating, sleeping, and the like as well as in his life cycle (conception, birth, puberty, marriage, child-rearing, death). More significantly, all of mankind appear to share cer-

tain basic needs and drives, as well as stresses or uncertainties related to disease, thwarted ambitions, bereavement, etc. If it is assumed that man's basic needs ought to be realized (as far as is reasonably possible) in every culture, we are given a basis for developing universal judgments of good and bad (9; 23; 50). As anthropologists again focus on similarities as well as differences among the earth's peoples, as psychologists recognize the involvements of their science with ethical problems and pan-human needs and capacities, as sociologists stress cross-cultural features of human society, and as psychoanalysts discern psychic universals in myths and other culture forms, there is increasing awareness of the "universal culture pattern," "cultural constants," "cultural invariants," and "ethical universals." Moral standards are universal; however much they vary in specific content, they are much alike in basic concepts of intent. It is very difficult currently to identify clearly the moral principles which are not relative, but the extension of careful scientific research should help us develop a "virtuous relativity" that can serve our needs more adequately and more consistently than does radical cultural relativity (30; for additional references see 2). New knowledge and radically changed circumstances in fluid society may alter some of these universal values, so "conditional absolutes" may be an appropriate term to apply to them (31).

Redfield has predicted that cultural relativism is in for difficult times. Anthropologists are likely to find it a hard doctrine to retain as philosophers' criticisms are buttressed by their own changing experiences when they analyze people who are neither unimportant nor remote from their own concerns. Nazi extermination of the Jews, white supremacy racism, and contemporary social disorganization of folk societies from the impact of western industrialism can hardly be viewed with ethical indifference. Since the anthropologist is a man as well as a scientist, he cannot do his work without human qualities, including that of valuing. In future ethnological studies it might be wise for the scientist to specify what he believes to be good and bad in the cultures he studies. Then other social scientists with different sets of values can also study the same groups; their conclusions undoubtedly will be different and will supplement the findings (47, pp. 145-157; 65, Appendix 2).

The declining popularity of ethical relativism among social scientists and philosophers does not mean, however, the removal of conflict between Christian and secular philosophies. The persuasiveness of cultural relativism has been in part the product of a false dichotomy which held ethical judgments to be either subjective and relative or transcendent and absolute. Since the fact that there is widespread variability disproved transcendence, the former alternative was chosen. "A third genuine alternative maintains the objectivity of value judgments but rejects the source of such objectivity in some transcendent realm, locating it, rather, in the projection of

human ideals." (50, p. 790). Obviously, such humanism is easily divorced from Christianity.

In my opinion, however, overt behavioral norms emerging from humanistic principles will, for the most part, coincide with those of the Christian Scriptures. In spite of the bewilderment that arises from first impressions of the earth's myriad moral codes, further analysis seems to indicate that there is a fundamental order and uniformity, with practically all peoples holding to precepts of respect for the Supreme Being or for benevolent substitutes, care for their children, control of sexual behavior, and reprehension of malicious murder, maiming, stealing, and deliberate slander against a friend.

This universal moral code agrees rather closely with our own Decalogue understood in a strictly literal sense. It inculcates worship of and reverence to the Supreme Being or to other superhuman beings. It protects the fundamental human rights of life, limb, family, property, and good name. (11, p. 563).

Although it would be difficult, if not impossible, to find a primitive people with all the forms of relationship between religion and morality that we as Christians might anticipate, it would be equally difficult to find one without traces of either direct or indirect relationships between religion and morality. Classical social science theory holds that morality in the sense of duties to one's fellowmen arose independently of religion and only later came to be considered as the expression of the will of supernatural beings. The rival theory, that duties to God and duties to man were in earliest times considered the will of God and that only later did morality and religion drift apart, actually may have more evidence in its support (11).

Such evidence indicates the likelihood that there are universal values, perhaps divinely revealed to man in the beginning of human history, which apply unequivocably to all mankind whatever their social condition or position. As anthropologists and other social scientists seek these out, they may approach a position equivalent to that of the Christian who sees certain general principles of conduct as an ideal for every society. They may thus accentuate and reinforce the philosophical, theological, and political doctrines which are commonly known as "natural law" (36, esp. pp. 58-80; cf. 14). The facts linked with this concept are "introspected or sensed raw data, antecedent to all theory and all cultures, given in anyone's experience in any culture." (43, p. 657). Cultural adaptations lead to variations in the "living law," which constitutes the social norms of the earth's respective peoples, but natural law provides for these a universal cognitive standard for measuring goodness or badness of these norms without being trapped by the practical and theoretical fallacies of ethical relativism (43). Surely it is not inconsistent with Christian theology to believe that the imprint of God's creative work, however distorted by sin it may be, is still reflected in the human heart (5)! The naturalistic methods of science will never in themselves fully reveal God to man, for it is only by faith that men can know Him. Yet they can help men of faith increasingly understand God's mighty workings which are revealed in the very nature of creation and hence of man, as well as in the Scriptures.

A "better" and a "worse" thus can, in fact, be established, for cross-cultural comparisons and corrections can be made, guided by conceptions of what men and society ought to be, just as corrections can take place within a society and within an individual on the basis of comparing action with ideals (59, pp. 25-42). The greatest problem in such comparisons, of course, is determination of what is ideal. For the Christian, the basic guides are the written and the Living Word of God.

The greatest weakness of relativism is that "it denies all objective basis for regarding one moral idea as better than another." (45, p. 112). Absolutism which stresses unconditional, universal, objective standards of right and good also is weak, for "it means the abandonment of an empirical attitude in the sphere of morals." (45, p. 112). Both are extremist and exclusive positions. An alternative intermediate position is perhaps the most tenable for modern man. The old and the new, tradition and innovation, respect for established principles and adaptation, all have a place in a society which is rapidly changing because of the impact of science and technology. "We need ideals flexibly applied yet all-embracing. We need to combine the universal and the particular, the changeless and the changing." (45, p. 122). But is this a Christian position? Ought not Christians to have absolute standards of right and wrong?

Christian Perspectives

Before attempting to answer the above question, let us note two contrasting ethical perspectives that may be observed among Christians in their efforts to support morality. The first of these emphasizes norms that will here be termed standards. A standard consists of a canon, edict, law, order, maxim, rule, or regulation which designates in absolute, authoritarian terms specific acts as either good or bad, righteous or sinful, rewardable or punishable. A standard focuses precisely upon definite details and makes them clearly "black" or "white" with no intermediary stages. It makes no allowance for exceptions. Thus, a standard may forbid men to have long hair, may prohibit the wearing of rings, may demand the tithing of mint or anise seeds, or may ban Christians from attending movies. Standards are closely linked with moral absolutism; they reduce Christian morality to a code of rules. Ethics based upon standards stress obedience to the letter of the law.

In contrast, many Christians emphasize principles of conduct. These are guiding models, broad rules, generalized patterns, basic doctrines, or fundamental truths which can be applied to a wide variety of specific situations and acts. A principle is a basic norm which may be used in deciding conduct or in making choices about

particular acts which are not directly mentioned in the rule. It is a guiding ideal on which other ideals depend. Illustrations of principles are Jesus Christ's teachings that we ought to love our neighbors as we love ourselves and to judge not that we be not judged.

Christian Absolutism

Fundamentalists traditionally have stressed precise standards of objective behavior more than general principles of Christian conduct. Perhaps this is because principles are so much more difficult to apply. Absolutism is the way of least resistance. No difficult decisions need be made by the one who simply consults a rule book that divides everything into black and white categories without intervening shades of gray.

But such an approach to Christian morality is beset by numerous weaknesses. Even if it were possible to develop a complete code covering all areas of life, the code would rapidly become antiquated in modern dynamic society. Technological change combines with social, economic, and political innovation to make today's relevancies tomorrow's ridiculous incongruities. Lacking flexibility to adjust to new circumstances, absolutist standards of Christian ethics bring disgrace upon themselves, upon the groups that insist upon clinging to them, and ultimately upon the Christ they profess to honor. The humanist criticism justifiably holds that absolutism is "a faith of stagnancy" in which men are anchored to their faith while the world around them changes, making their faith become irrelevant (22).

The inadequacy of standards to cope with conditions of a changing world has perhaps no better recent illustration than that provided with the advent of television. Even as they continued condemning the sin of movieattendance, some fundamentalists uncritically watched brutal, carnal, sensual, and seductive scenes in their own homes, unaware of the inconsistency that thus brought upon them the scorn of their youth and the disdain of the world.

Many Christians have made the mistake in foreign missionary programs of equating Western cultural standards with Christianity. The folly and detrimental results of this policy are increasingly apparent. They make a similar mistake at home when they equate regional, local, or sectarian Baptist, Lutheran, Mennonite, Presbyterian, or other standards with Christianity in the ethnocentric belief that all who come to know God in truth through Jesus Christ will inevitably arrive at precisely the same standards for Christian living as their own if only they sincerely study God's Word in order to do His will.

Instead of finding what Scripture really has to say and modifying their cultural traits to conform to Scriptural principles they unwittingly distort Scripture to find support for their culturally established beliefs. (57, p. 115).

Christians who adopt this practice are prone to focus on maintaining their cultural prejudices until they cannot cooperate for effective Christian service. They are so critical of "non-Christian customs" that they cannot witness effectively. "Instead of understanding the non-Christian culture and manifesting love for the non-Christian (person), they condemn him." (57, p. 115). As one of America's leading theologians correctly stated,

The weakness of orthodox Christianity lies in its premature identification of the transcendent will of God with canonical moral codes, many of which are merely primitive social standards, and for development of its myths into a bad science (42, p. 9).

To use the Bible in that manner as the basis for a set of rigid rules applied impartially to all Christians under all circumstances at all times is equivalent to allowing our arms, legs, mouths, etc. to be tied with fetters that make of us mere puppets directed and moved by the rule-makers and rule-enforcers. It makes us slaves to the traditions and interpretations of men. It removes the liberty that ought to be ours in Christ. It binds us to the temporal order of transient things which are seen, and it may alienate us from eternal spiritual verities which are not seen. It makes us walk by sight, not by faith. It causes confusion of ends and means in Christian living, making the "fruits of the Spirit" the goal instead of a by-product resulting from a right relationship with God. It may alienate men from Christ by making them think that, because they observe the manmade rules of a church, they are living the life that is in Christ. It makes men deify human institutions and customs, so the ultimate object of their worship becomes the perpetuation of a set of traditional forms and patterns of activities. It detracts from true worship of God as revealed in the written Word and in Jesus Christ, the Living Word, by the Holy Spirit. It minimizes the work of the Holy Spirit whose task it is to guide the Christian into truth (John 16:13), and thus it subjects men to the risk of idolatry which puts other gods in His place. It falsely presumes that men have infinite knowledge and perfect wisdom, failing to recognize that man's finite mind limits his reason and his lack of realized perfection marks all his acts with the stain of sin. As a result, absolutism usurps the Lordship of Jesus Christ, placing man on the throne instead of the omniscient, eternal Lord of Creation.

Man looks on the outward appearance, but God looks on the heart (I Sam. 16:7). Not mere outward conformity to human interpretations of God's Word but inward obedience and submission to the Holy Spirit's guidance is the criterion of whether or not one is doing God's will. These subjective intentions and meanings may be known only to oneself and God. Objective interpretations by others often misconstrue one's conduct, but God is the Judge to whom men ultimately are responsible. Of course, men's love for and responsibility to Him must always include love for and responsibilities toward fellow men created in His image (I John 4:19-5:2). Respect for and courtesy toward their personal and social customs and the absence of judgmental attitudes in humble recognition that one may be wrong therefore accompany true godliness.

It hence seems to me that God respects the society which emphasizes cultural pluralism. Christians ought to uphold it as a sustainer of true religious liberty within which persons can choose to serve or to reject Christ and the Christian can best exercise his personal responsibilities to God. Variations in social standards for Christian living within and between sects and denominations, by regions, and by theological interpretations of liberalism, neo-orthodoxy, evangelicalism, and fundamentalism need to be respected, even though we clearly identify ourselves with one position, because freedom for one depends upon freedom for all. This cultural pluralism permits a broad-sweeping exercise of individual responsibility and reflects a higher degree of religious liberty than can be present when authoritarian standards are dogmatically imposed upon all alike. Freedom is an essential prerequisite to the exercise of free will. [If man's conduct and his fate in life are rigidly determined by biological, cultural, or other forces, he lacks freedom. Although human limitations and endowments and the characteristics of particular cultures condition and limit human freedom so that "human nature" is always relative to the society in which it has been developed, much of man's maturation and action is self-determined and based upon his own choice (see 32).] Many of man's arbitrary "rules for Christian living" may seem as foolish from our future perspective in eternity as would be the regulation of which shoe to put on first or how many hairs to part on the right side in order to live a "holy life."

But are there no absolute standards whatever that God intends His people to apply at all times and in all places? The Ten Commandments seem to offer a universal set of standards applicable to all mankind in every age. Yet most Christians believe it is justifiable to violate the command, "Thou shalt not kill," in the case of "just wars" or capital punishment of offenders. The majority of them do not keep the Sabbath, although they give at least token obedience instead to "the Lord's day." Perhaps the majority of them do not fulfill the command, "Six days shalt thou labor," if they can get by with laboring only five.

Jesus indicated that all of the commandments of God can be summed up in the two-fold principle of loving God and loving one's neighbor (Matt. 22:35-40; Mark 12:28-31). This demands positive action at the same time as it prohibits many kinds of destructive and negative behavior. Love results in many forms of kindness (Luke 10:25-37; I Cor. 13), but it also is manifested by the absence of deeds that are condemned by the Decalogue.

New Testament exhortations clearly condemn sexual immorality, lying, theft, deceit, and many other types of wickedness. Man's problem lies, however, in the definition of each of these evil deeds. For example, is a "white lie," social subterfuge, or half-truth used in love to protect the welfare and work of a fellow Christian a

lie in the sinful sense? Since definitions of these sins vary in time and place, we must conclude that if there are absolute standards, the social situation decrees how these shall be interpreted and applied in any given group as well as in any particular person's life. God's Word provides the Christian with principles for living, not absolutist standards. It allows for a type of cultural relativity within this framework.

A principle never applies

. . exactly the same to the lives of differing individuals. . . . it is much harder to regulate things when it is the individual who must decide his own behavior; and it is much harder to go about the usual pastime of comparison, the end of which is a relative righteousness. But when an external group standard becomes the law to which a man must appeal, it cannot be the Bible and God which he obeys, for the Bible can be understood only in terms of principle, which applies in various ways to the lives of different men, and which the individual must appropriate to his own life, being content with obedience rather than approval from his group. An external standard can never change the interior of a man, but an external standard can deceive a man into thinking he is obeying God. ... by setting up and teaching of a pattern of external-ities we defeat our purpose, for real obedience to Jesus Christ through the Bible is nearly impossible to teach where cultural conclusions are already forced upon the student in such a way as to imply that he is hardly a Christian if he does not fulfill the standard of the group. . . . obedience to God is active response with respect to the situations in the life of a man. It is he himself, however, not his religious culture, who must in private prayer and personal Bible study decide both what the principle is and how he must obey it (18, pp. 222-223, italics added).

Absolutist objective standards of Christian ethics err in being statically wedded to past traditions and social conditions. Prejudices blind those who hold them to their inconsistencies. Self-interest is easily clothed in garments of Christian idealism. Relatively narrow educational and social backgrounds limit perspective, blind people to the implications of their views, and prevent them from seeing the validity of Christian standards different from their own. Prideful sin makes them criticize others without criticizing themselves (cf. 7, pp. 15-31). Rigid codes for Christian living therefore tend to reflect man's culture as of a given time and place, absolutizing that which ought to remain relative.

Whether Christians sit or recline at meals; sit, kneel, or stand lifting holy hands to pray; use a single communion chalice or individual glasses; are baptized in running water or in an indoor pool; and greet one another with a simple "Hi!," a handshake, or a holy kiss is not ultimately important. The Kingdom of God does not consist of habits of clothing, recreation, diet, or even religious rites and ceremonies. This was a major teaching of Jesus Christ in His condemnation of the Pharisees for the externalism of their religion (49, pp. 111-159).

The only absolute in Christianity is the triune God. Anything which involves man, who is finite and limited, must of necessity be limited, and hence relative. Biblical cultural relativism is an obligatory feature of our incarnational religion, for without it we would either absolutize human institutions or relativize God (40, p. 282, note 22).

Biblical principles for Christian living can be termed a "relative relativism" which demands dynamic obedience to a living God rather than static conformity to dead rules (40, pp. 48-52).

Christian Relativism

As already indicated, a type of relativism for Christians is advocated in the New Testament. One of the clearest statements about it appears in I Corinthians 9:19-23 in which the Apostle Paul states that he became all things to all men so that he might win them to Christ (cf. Acts 21:18-26). The epistle to the Galatians was written to uphold the liberty that is in Christ and to warn against false brethren who wished to bring Christians under bondage to the law. Justification is by faith, not by observance of the rules, regulations, and ceremonies of the law. Similarly, the church council at Jerusalem concluded that gentile Christians need not bear the yoke of the law. Reflecting cultural conditions, it instructed them only to abstain from idolatry, unchastity, that which was strangled, and blood (Acts 15:1-29).

The Christian should be led by the Holy Spirit, not by a series of detailed rules and regulations. He has been called unto liberty, yet this liberty is to be used to produce the fruits of the Spirit and not to gratify the desires of the flesh (Gal. 5:13-25). The law of liberty (the law of love) has limitations, as all liberty does, for limitations are essential to protect liberty. The limitations upon Christian liberty are given generally as principles rather than as specific rules or regulations. For instance, none of us lives to himself, and each is accountable directly to God. He who believes he may eat anything should not despise the weak Christian who abstains from certain types of food and vice versa. If habits of eating and drinking cause another to be injured, the habits should be changed so that they will be mutually upbuilding. He who is strong and not under bondage to dietary habits and observance of special days ought to bear the burdens and failings of the weak, pleasing his neighbor for his edification, even as Christ pleased not Himself (Rom. 14:1-15:6; cf. I Cor. 8). The Christian should not be subject to legalistic regulations, for he is dead to the elementary ordinances of the law and raised with Christ. He ought, therefore, to set his mind on things that are above, not on things of this earth (Col. 2:16-3:4; see 12).

Jesus taught that we ought not to judge others lest we ourselves be judged. Our responsibility is to take away our own faults before correcting the minor flaws of our brethren (Mat. 7:1-5). This implies a type of *individual relativity* by which each Christian is to judge his own actions under guidance of the Holy Spirit who enlightens the principles of God's Word. Jesus taught in the parable of the faithful and wise steward that the more God has committed to one, the more He will require of him (Luke 12:35-48). What is right for one

person may be wrong for another, for each has his own individual calling and mission in life; each has his own personal endowments and weaknesses; each is in his own unique social situation, and each should make love his aim (Rom. 12:3-8; I Cor. 12:4-14:1).

All the specific ethical instructions of the New Testament may be seen as expositions of the one basic command to love. Concrete applications of New Testament principles are always through the "judgment of faith" which is the result of a new way of looking at all things and all situations through faith in Jesus Christ. It means doing God's will spontaneously because one is filled with His Spirit and hence filled with love. It involves the joyful liberty of children of God constantly renewing themselves because they have been made new (33, pp. 85-100).

The Bible also recognizes a social relativity in which groups with different degrees of revelation of God's will are judged according to the standards that have been "written in their hearts" and consciences (Rom. 2:12-16). The gentiles outside the law are a law to themselves. Customs such as divorce, polygamy, swearing vows, revengeful punishment, and hating one's enemy which were not condemned in early Hebrew history were clearly disapproved of by Jesus Christ (Matt. 5:31-48). What is right for one group of people may therefore be wrong for a corresponding group at a later time under a different set of environmental, social, and technological circumstances.

Many Christian standards which vary from one group to another (some approve of television movies while others condemn them, some attend the theater and others avoid it, some use cosmetics while others scrupulously abstain, etc.) seem to reflect differences in the social environments in which a majority of the members live. In the large city today, judiciously applied lipstick is not considered even by the most conservative to be a label of the woman of loose morals, nor is card-playing considered irrevocably linked with gambling. Activities which a generation ago would have been sinful for the Christian are no longer that, but in some rural communities they may still be a sign or symbol of irrespectability and hence wrong for the child of God. As Christians move from one community to another, they must face the issues of outward conduct wisely, considering the social meanings locally attached to various acts lest they offend weaker brethren and injure their spiritual welfare. What is right at one time or place may indeed be wrong on the basis of the very same Christian principles at another.

This is not to say, however, that all culturally approved practices are right for the Christian. God condemned King David for taking Bathsheba away from Uriah even though that was a common custom among oriental kings of his day (II Sam. 11:2-12:23). Christians are warned to "be not conformed to this world" (Rom. 12:2), to deny "ungodliness and worldly lusts"

(Titus 2:12), not to be friends of the world (James 4:4; I John 2:15), and "to walk not as other Gentiles walk" (Eph. 4:17). Each is to work out his own salvation, permitting God to work in him to do His good pleasure so that he may be blameless and harmless "in the midst of a crooked and perverse nation" (Phil. 2:12-16).

Paradoxically, Christian relativism hence recognizes a true Absolute, Almighty God, who reveals Himself and His will primarily through Jesus Christ, the Holy Scriptures, and the Holy Spirit. Man can know Him sufficiently to receive redemptive grace, but man cannot in this life fully comprehend God's work and His will. Even Christians know only in part (I Cor. 13:9-12); as a result, their decisions and deeds can never with complete assurance be labeled by man as perfectly just, completely pure, or absolutely holy (cf. 41, pp. 234-241). Only One is faultless; only by receiving the gift of salvation is His righteousness imputed to man. The redeemed can glory only in Him whom God made to be their wisdom, righteousness, sanctification, and redemption (I Cor. 1:30-31).

Christian relativism necessitates a constant recognition that even Christians sin (I John 1:8) and that all man's institutions and practices are tainted by sin. Hence

the transcendent character of the Christian ideal . . . keeps every human program and every human institution under judgment. . . Nothing we do or achieve is likely to be free from distortion by an overemphasis upon those interests that are closest to us or by the narrowness of our own perspective as we make judgments (7, p. 59).

All our actions, motives, and goals must be subjected to Spirit-led scrutiny in the liberty that is ours in Christ. As we analyze them to determine what we ought and ought not to do in our particular social and cultural setting, we can ask the three questions suggested by Reyburn for missionaries to use in Christian evaluation of cultural items: (1) How do people in the culture perform such judgments and how do they scale their own hierarchy of values? (2) What kinds of innovations are at work within and without the society which tend toward changing present conditions? (3) In what ways are such changes working toward or away from generalized Christian moral and spiritual values? (48).

It is these general moral and spiritual values applied by the Holy Spirit to one's specific social position and unique set of circumstances which determine whether his acts and their accompanying motives and goals are predominantly sinful or righteous. Fortunately, God is the ultimate Judge, not our fellowmen, and He has made provision through Jesus Christ for our utter sinfulness.

Christian relativism is not a new doctrine. "Christian ethical theory has always been particularly concerned with . . . the incarnation and expression of the absolute in and through the relative." (10, p. 6). Even the medieval theology of St. Thomas Aquinas (1225-1274) combined relativism and absolutism (15, esp. pp. 309-341). Were it not for the tremendous range of vari-

ability in regard both to what is permissable and what is demanded in Christian morality, Christianity would long since have become a dead religion, for it would have been applicable only to one of man's cultures at one period of time and could never have become a successful missionary faith. Without a recognition of "the inevitable presence of the relative even within the Christian tradition itself," American and European Christians are likely to continue promulgating western secular culture traits as if they were essential elements of Christian faith (10, p. 92).

"To say that our moral judgments are relative is only another way of saying that they are relevant, that they make sense in terms of what we know of life and the world." (10, p. 108). Man's free will is fully recognized, his range of choice is extended, and his responsibility of choosing as an aspect of making God rather than the culture pattern the Sovereign of his life is maximized by Christian relativism. The apparent dilemma of absolutism versus relativity is resolved by recognition of the proper place of both in Christian society.

Some Practical and Theoretical Implications of Christian Relativism

Christian relativism obviously is different from the extreme form of cultural relativity which holds that any religion or faith is all right, provided only that one be sincere. In fact, it may well be labeled as an absolutist philosophy by the critic, for it looks to the Bible as a guide to principles for personal and social conduct. Yet in looking to the Bible Christian relativism recognizes that the Bible must be rightly interpreted.

Many things in the Bible which belong rather to the setting of God's revelation than to the essence of the revelation are fascinating subjects of study in themselves, but it is good to keep them in their proper perspective by considering what part they play in relation to God's saving Word to men (8, p. 14).

A cultural as well as a linguistic translation of the

Bible is needed. The world outlook of the first century was different from that of Old Testament times, and both were vastly different from that of twentieth century western civilization. "To assume that the Bible may be read with linguistic and cultural uniformity betrays the facts. It is a caricature of facts to assume that English is the language and the twentieth century is the setting of the Bible." (24, p. 18). This process of communicating the Christian faith which was revealed in one cultural setting to men in another culture which is vastly different goes far beyond translating the words of the message. The gospel cannot produce in the "new" culture exactly the same results as it did in the cultural milieu which is the setting of the New Testament, but the products of its inspired proclamation will be parallel and the redeeming grace of God will be just as much at work (cf. 63).

Our interpretation of the Bible must always be done in the consciousness that the language of the Bible with reference to the natural universe is popular rather than scientific. As Ramm has so clearly indicated, the Bible employs the culture of the times in which it was written as the medium of revelation. Its vocabulary, measuring systems, geographical terms, and tendency to attribute psychic functions and emotional states directly to the heart, liver, bones, bowels, and kidneys were meaningful in that cultural setting to which God's revelation was first given, even though they may be misleading to the naive as well as the highly learned today (46, pp. 65-77).

The Bible is non-scientific, but it is not anti-scientific. It speaks specifically to a particular culture, but it is nevertheless relevant for all men at all ages of history and all stages of cultural development. In order to discern what is transcultural, rather than limited to a particular culture, we can apply the following principles of interpretation:

Whatever in Scripture is in direct reference to natural things is most likely in terms of the prevailing cultural concepts; whatever is directly theological or didactic is most likely transcultural; and by a clear understanding of the sociology of language . . . we can decipher what is transcultural under the mode of the cultural (46, p. 78).

It is the truth underlying the cultural concepts, rather than the cultural vehicle used to convey the truth, that is binding upon man in God's inspired Scriptures. While it is true that this position means "that God has revealed Himself to man in a book written in terms of discredited science and outmoded cultural patterns" (13, p. 13), this does not mean that God's revelation is discredited. After all, had He given man His Word in the language and concepts of twentieth century science or of present American culture, it would not have been meaningful to men of the past and it would very likely be outmoded even for us in less than a generation.

As he engages in his task of distinguishing between that which is culturally limited and that which is the eternal truth of God in the Scriptures, the Christian should have an intense interest in the work of social scientists who are seeking cultural universals—those moral values present in all cultures of mankind which are essential to the survival of man or of society. Their findings undoubtedly will reaffirm the principles for human relations presented in God's Word and will help to clarify our interpretations of them. Supercultural absolutes that may be found by such work will vary in their specific applications from one culture or subculture to another, but they will help to solidify faith in God's Word as the source of ethical principles by which men ought to live. They will clarify how Christians succeed and fail to do God's will in the midst of a crooked and perverse generation. They will not, however, bring men to a redemptive knowledge of Christ, except insofar as they fulfill the "schoolmaster" or "custodian" function of the law, pointing out to men how they fall short of the ideal and hence need salvation and keeping men under the constraint that is essential

to the maintenance of order in society (cf. Gal. 3:21-29).

As the world's cultures become more and more like one, and as men of diverse backgrounds and value-orientations are drawn ever closer to each other in time-cost distance, it is increasingly important to have universal principles by which to guide individual and collective life. The need of men to predict each other's behavior in order to correlate their activities effectively for the highest welfare of all makes universal ethical principles ever more essential. "When people learn to think of themselves as members of a single world society, it will be easy for them to agree on a single ethical system." (35, p. 544).

Meanwhile Christians would facilitate dissemination of the gospel by explicitly adopting Christian relativism, the modified type of cultural relativity which lets each Christian person and group decide for itself in its own unique set of circumstances and under the guidance of the Scriptures and the Holy Spirit what is right and wrong. Such Christian relativism would not countenance the spiritual imperialism that has transplanted alien, often meaningless, culture traits from missionarysending nations to non-Christian lands as if they were an essential part of the Gospel of Christ. It would not confuse non-Christians at home and abroad by the wide variety of contradictory rules and regulations that currently alienate some potential converts. It would be consistent with both social science knowledge and the Bible.

But alas! Christian relativism has its hazards as well as its blessings. Men's hearts are too easily "hardened by the deceitfulness of sin" (Heb. 3:13) and led astray by the passions or lusts of the flesh that wage war against the soul (I Pet. 2:11). Hence some might use this principle of Christian relativism as a cloak for sinfulness, an excuse for licentiousness, a shield for antinomian immorality, a rationalization for wickedness.

The practical question, however, is not whether there will be sin among even the children of God under Christian relativism, for all the alternative ethical policies are also subject to abuse. Hence the practical question is which is the least of the "evils" between which we must choose.

But even more important is the question of God's will. What has He revealed His will to be in regard to moral values? Christian relativism summarizes that revelation. It does not water down, reduce, or treat lightly any essential New Testament doctrines. It is the way of persuasion, enlightenment, and open-minded commitment rather than of coercion, compulsion, or threat. It can be readily reconciled with God's revelation through creation, which is the subject of scientific inquiry, and at the same time it can operate with clear Christian insights (cf. 29). It recognizes the fact that the Christian is dead to the law but alive to God through Jesus Christ. It acknowledges the significant

role of the Holy Spirit in ethical action and thus avoids the errors of both legalism and antinomianism. Under Christian relativism we are released from and dead to the law which held us captive, so we serve God, not under the old written code of the letter of the law, but in the new life of the Spirit (Rom. 7:6; see also I Cor. 2:7-16).

. . through the action of the Spirit, Christ becomes our Eternal Contemporary to aid us in moral decisions. Only through the continuing Spirit of Christ can we discover the will of God for us in solving the moral issues of our time (4, p. 95).

Christian relativism demands a basic confidence of Christians in each other. Rather than destroying their fellowship by a carping spirit, viscious incriminations, malicious recriminations, suspicious gossiping, and doubtful disputations, they will, if led by the Holy Spirit, have trust in each other which results in a loving attitude, a forgiving spirit, and gentle restoration of those who make mistakes. Each will look to himself lest he also be tempted. While bearing one another's burdens, each will test his own work; simultaneously all will work for the good of all men, helping each other interpret the principles of God's Word so that they will be meaningful in contemporary circumstances (Gal. 6:1-10). By their love for each other, they will make all men know that they are Christ's disciples (John 13:35). Christian relativism will thus contribute greatly to evangelistic outreach in America as well as through sensible mission programs abroad.

Conclusion

All men of all cultures and all ages have disobeyed "God's super-cultural will" whether they realize it or not. Although God is willing to adjust His dealings with men to fit the cultural environment within which they live, redeemed men ought to adjust their lives so that they conform more and more closely to the Christlike pattern indicated by the principles given in the New Testament. This will especially affect the motivations for living that guide daily conduct. It will involve readjusting behavior to fit the pattern given by the Word and the Holy Spirit, rather than adjusting interpretations in order to rationalize and justify established patterns. It will involve recognition of the fact that, although the picture God has given of Himself had to be expressed in cultural terms in order to be intelligible to finite men who live on a cultural level, God Himself is super-cultural, transcending limitations of man's national and religious cultures and subcultures (55, esp. pp. 134-141, 191; 53). It will involve, in effect, that integration of Christian absolutism and cultural relativity which we have here labeled Christian relativism.

True Christ-like concern for the eternal welfare of men can be manifested by consistent efforts to cut through culture patterns and social customs in order to reach people of other cultural and subcultural backgrounds. Self-sacrifice is usually a major element of such demonstrations of love. Just as Christ stripped

Himself of His heavenly glories to become the servant of men (Phil. 2:1-13), we must strip ourselves of all attachments to our earthly culture which would become a barrier hindering men from experiencing a personal confrontation with Him whom to know is to have life

Christians like other men are inclined to banish the claims of Christ from their daily concerns by an idolatrous substitution of false gods called values. Many cultural barriers hinder American Christians' relationships with Christ (54).

In his single-minded direction toward God, Christ leads men away from the temporality and pluralism of culture. In its concern for the conservation of the many values of the past, culture rejects the Christ who bids men rely on grace (41, p. 39).

Christ and culture, both of which are represented in the social self of the Christian, are hence engaged in dialogue, if not direct conflict, with one another. This state of tension will continue as long as we remain in this present life. Various kinds of solutions have been achieved, but we must always remember that in every culture and subculture these are finite and limited. Men's values are relative in time and place, but Christians should always strive to ground them in the eternal Absolute, God. He and absolute values are not directly accessible to science (1), but if such values are revealed indirectly as cultural universals, they may be discerned through scientific studies by men of Christian commitment.

Through the supercultural relationship with God called faith, by which the Christian lives a life which constantly acknowledges that God is and that He is a rewarder of them that diligently seek Him, the Christian can in some measure transcend his culture and live the life which is hid in Christ in God (cf. 54). God's new covenant will be increasingly indelible in his heart and mind as he obediently makes each moral decision in the prayer that God's will be done on earth as it is in heaven. His life will then be characterized by Christian relativism.

1. Adler, Franz, "The Value Concept in Sociology," American

Journal of Sociology, 62:272-279, Nov. 1956.

2. Albert, Ethel M., Clyde Kluckhohn, et al., A Selected Bibliography on Values, Ethics, and Esthetics in the Behavioral Sciences and Philosophy, 1920-1958, Glencoe:

The Free Press, 1959. Barnett, H. G., "On Science and Human Rights," Ameri-3. Barnett, H. G.,

can Anthropologist, 50:352-354, April-June 1948.
Barnette, Henlee H., Introducing Christian Ethics, Nashville: Broadman Press, 1961.

Baum, Gregory, "Protestants and Natural Law," The Commonweal, 73:427-430, Jan. 20, 1961.

6. Benedict, Ruth, Patterns of Culture, New York: Houghton Mifflin Co., 1934. Bennett, John C., Christian Ethics and Social Policy, New

York: Charles Scribner's Sons, 1946.

8. Bruce, F. F., "The Victoria Institute and the Bible,"

Journal of the American Scientific Affiliation, vol. 13, no. 1, pp. 11-14, March 1961.
Cantril, Halley, "Ethical Relativity from the Transactional Point of View," Journal of Philosophy, 52:677-687, Nov.

10, 1955.

10. Casserley, J. V. Langmead, Morals and Man in the Social Sciences, New York: Longmans, Green and Co., 1951.

- Cooper, John Montgomery, "The Relations Between Religion and Morality in Primitive Culture," in Margaret Mead and Ruth L. Bunzel, eds., The Golden Age of American Anthropology, New York: George Braziller, 1960, pp. 560-572.
- Cotterell, F. P., "I Don't Eat Tomatoes!" Eternity, vol. 13, no 4, pp. 22-23, April 1962.
- 13. Cowperthwaite, Irving A., "Some Implications of Evolution for A. S. A.," Journal of the American Scientific Affiliation, vol. 12, no. 2, pp. 12-13, June 1960.
- Cross, Wilford O., "Current Objections to Natural Law Theory in Ethics," Anglican Theological Review, 43:32-46, Jan. 1961.
- DePloige, Simon, The Conflict Between Ethics and Sociology, trans. by Charles C. Miltner, St. Louis: B. Herder Book Co., 1938.
- Durkheim, Emile, The Elementary Forms of the Religious Life, trans. by Joseph W. Swain, Glencoe: The Free Press, 1947 (French original ed., 1912).
- 17. Edel, Abraham, Ethical Judgment: The Use of Science in Ethics, Glencoe: The Free Press, 1955.
- 18. Frederickson, Dean, "The Problem of Formalism and Missions," Practical Anthropology, 4:220-223, Nov.-Dec. 1957.
- Gillin, John, "National and Regional Cultural Values in the United States," Social Forces, 34:107-113, Dec. 1955.
- Gouldner, Alvin W., "The Norm of Reciprocity: A Preliminary Statement," American Sociological Review, 25:161-178, April 1960.
- 21. Gurvitch, Georges, "Is the Antithesis of 'Moral Man' and 'Immoral Society' True?," *Philosophical Review*, 52:533-552, Nov. 1943.
- 22. Harper, Robert A., "Faith in What? A Sociologist's Answer," The Humanist, 9:105-109, Oct. 1949.
- 23. Head, W. G., "Adaptive Sociology," British Journal of Sociology," 12:23-40, March 1961.
- Hendricks, William L., "Biblical Interpretation—the Pastor
 —and the Contemporary Scene," Southwestern Journal of Theology, 2:17-26, April 1960.
- 25. Herskovits, Melville, Man and His Works, New York: Alfred A. Knopf, 1948.
- Hildebrand, Dietrich von, Christian Ethics, New York: David McKay Co., 1953.
- Hobhouse, L. T., Morals in Evolution: A Study in Comparative Ethics, New York: Henry Holt and Co., 3d ed., 1916.
- Hoult, Thomas Ford, The Sociology of Religion, New York: Dryden Press, 1958.
- Kegley, Charles W., "Evangelical Ethics and Relations Between the Sexes Today," Journal of Religion, 41:129-140, April 1961.
- Kluckhohn, Clyde, "Ethical Relativity: Sic et Non," Journal of Philosophy, 52:663-677, Nov. 10, 1955.
- Kluckhohn, Clyde, "Values and Value-Orientations in the Theory of Action: An Exploration in Definition and Classification," in Talcott Parsons and Edward Shils, eds., Toward a General Theory of Action, Cambridge: Harvard University Press, 1951, pp. 388-433.
- Kolb, William H., "A Social-Psychological Conception of Human Freedom," Ethics, 63:180-189, April 1953.
- Kraemer, Hendrik, The Christian Message in a Non-Christian World, New York: Harper and Brothers for the International Missionary Council, 1938.
- 34. Lea, Henry Charles, "Ethical Values in History," in Annual Report of the American Historical Association for the Year 1903, Washington, D. C.: Government Printing Office, vol. I, pp. 55-69, 1904.
- 35. Linton, Ralph, "Universal Ethical Principles," in Walter Goldschmidt, Exploring the Ways of Mankind, New York: Holt, Rinehart and Winston, 1960, pp. 534-544.
- Maritain, Jacques, The Rights of Man and Natural Law, trans. by Doris C. Anson, New York: Charles Scribner's Sons, 1945.

- Mead, Margaret, An Anthropologist at Work: Writings of Ruth Benedict, Boston: Houghton Mifflin Co., 1959.
- 38. Mills, C. Wright, "A Pagan Sermon to the Christian Clergy," Nation, 186:199-202, March 8, 1958.
- 39. Moberg, David O., The Church as a Social Institution, Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1962.
- 40. Nida, Eugene A., Customs and Cultures: Anthropology for Christian Missions, New York: Harper and Brothers, 1954.
- Niebuhr, H. Richard, Christ and Culture, New York: Harper and Brothers, 1951.
- 42. Niebuhr, Reinhold, An Interpretation of Christian Ethics, New York: Harper and Brothers, 1935.
- Northrop, F. S. C., "Ethical Relativism in the Light of Recent Legal Science," *Journal of Philosophy*, 52:649-662, Nov. 10, 1955.
- 44. Phillips, J. B., The New Testament in Modern English, New York: The Macmillan Co., 1958.
- Rader, Melvin, Ethics and Society: An Appraisal of Social Ideals, New York: Henry Holt and Co., 1950.
- Ramm, Bernard, The Christian View of Science and Scripture, Grand Rapids: Wm. B. Eerdmans Publishing Co., 1956.
- Redfield, Robert, The Primitive World and Its Transformations, Ithaca: Cornell University Press, 1953.
- Reyburn, William D., "Christianity in Cultures: The Missionary and the Evaluation of Culture," Practical Anthropology, 4:238-244, Nov.-Dec. 1957.
- Robertson, A. T., The Pharisees and Jesus, New York: Charles Scribner's Sons, 1920.
- Schmidt, Paul F., "Some Criticisms of Cultural Relativism," Journal of Philosophy, 52:780-791, Dec. 8, 1955.
- Scofield, C. I., The Holy Bible: The Scofield Reference Bible. New York: Oxford University Press, rev. ed., 1917.
- Shinn, Roger L., "Some Ethical Foundations of Christian Theology," Union Seminary Quarterly Review, 15:99-110, Jan. 1960.
- Smalley, William A., "Culture and Superculture," Practical Anthropology, vol. 2, no. 3, May-June 1955.
- 54. Smalley, William A., "The World Is Too Much with Us—II," Practical Anthropology, 6:186-189, July-Aug. 1959.
- Smalley, William A., and Fetzer, Marie, "A Christian View of Anthropology," in The American Scientific Affiliation, Modern Science and Christian Faith, Wheaton, Ill.: Van Kampen Press, 2d ed., 1950, pp. 98-195.
- Sumner, William Graham, Folkways, Boston: Ginn and Co., 1906 (New York: Mentor Books, 1960).
- Taylor, Robert B., "Cultural Relativism for the Christian," Practical Anthropology, 1:108-119, Sept.-Oct. 1954.
- Titus, Harold H., What Is a Mature Morality?, New York: The Macmillan Co., 1943.
- Vivas, Eliseo, The Moral Life and the Ethical Life, Chicago: University of Chicago Press, 1950.
- Wallis, Louis, Sociological Study of the Bible, Chicago: University of Chicago Press, 1912.
- Westermarck, Edward, Ethical Relativity, New York: Harcourt, Brace and Co., 1932.
- Westermarck, Edward, The Origin and Development of the Moral Ideas, New York: The Macmillan Co., 2 vols., 1906.
- Winter, Ralph D., "Translation and Transduction," The Bible Translator, 12:39, Jan. 1961 (reprinted from Practical Anthropology, no. 3, 1960).
- Christensen, Harold T., "Cultural Relativism and Premarital Sex Norms," American Sociological Review, 25:31-39, Feb. 1960.
- Myrdal, Gunnar, Richard Sterner, and Arnold Rose, An American Dilemma, New York: Harper and Brothers, 1944.

Your comments on this paper are invited. Send them to the editor or to the author, Bethel College, St. Paul 1, Minnesota.

Physiological Changes With Population Increase*

Marlin B. Kreider**

Man, like all other forms of life, is influenced by his environment. This environment is made up of the social as well as the physical surroundings. However, man, in turn, through his superior intellect, can influence and alter this environment. He has done this frequently in the past in order to contribute to his immediate welfare, but many times, in the case of the physical environment, he has disregarded the long-term effect of his interference. Since the influence of the environment may become more critical as the human population increases, some of the more obvious limitations of the physical environment will be presented here briefly, followed by a discussion of the less obvious effects of the social and psychological environment on the physiology.

Physical Environment

The availability of food and water has a strong influence on all living things. This factor is of most critical or primary importance in any consideration of increasing populations and is currently a serious problem for many peoples of the earth. A man can live for about 12 days without water (1) and somewhat longer than a month without food (2) under optimum conditions of temperature and rest and for varying lengths of time with inadequate or reduced diets. The availability of food is influenced by the meteorological conditions. In the extreme hot and cold barren areas of the earth the small amounts of existing life available for food will support a limited number of men.

In addition to its effect on other animals and plants, climate has a direct effect on man. Since man cannot adapt biologically to these extremes, he must construct elaborate cultural buttresses for protection. All this increases greatly the effort required to survive in such climates.

Another environmental factor is the gaseous content of the inspired air. For man, a decrease of oxygen concentration or pressure by one half, poses a serious problem as does the increase of carbon dioxide to as little as 3 percent of the inspired air for any length of time. This is not generally a problem for man except when he goes below or far above sea level but could conceivably become a problem due to large-scale manipulation by man.

The problem of adequate physical space has disturbed man thus far only when he voluntarily insisted on living in crowded areas or was forced to do so by manmade boundaries such as immigration quotas and socioeconomic patterns. Man's need for space may be more sociological and psychological than it is physiological. Certainly a high population density creates more human encounters and limits freedom, therefore it would seem axiomatic that more social and psychological problems would develop. This is borne out by studies of both

animal (3) and human behavior. But in addition to affecting behavior there is evidence that these social and psychological problems created by a high population density, also create tensions that affect the physiological functions of the body. This will be discussed later. In addition to the direct effect of limited space on man is its effect on the biotic world and thus on man's food supply. An example of this effect is the need of plants for space for roots and foliage and of some animals for more than one environment or location in order to complete their life cycles.

In the process of changing his own environment man has frequently altered the environment of plants and animals. This includes altering the water supply through massive earth removal projects or destruction of forests, cutting off the sun, poisoning the air and water with industrial wastes (4), and by numerous other means. By such acts man has hindered the growth and survival of plants and animals which at the same time decreased his own food supply. He also has upset the balances of nature by destroying certain species in an area, encouraging the population growth of another species upon which it feeds, which may then become a plant or animal pest of man (5).

The following example of man's disturbance of the intricate balance of nature is taken from a college biology text (6).

"In protecting domestic animals and expressing a dislike for certain kinds, man may have killed off as far as possible all hawks, owls, wolves, foxes, coyotes, mountain lions and snakes from an area. As a result the grass on which he sought to pasture his herd went into decline because there was no longer any appreciable check on the mouse and grasshopper population. No hawks, owls, foxes, and snakes meant more mice which scoured the region thoroughly for grass seeds to feed their increasingly numerous young and thereby stopped the grass from maintaining its normal rate of reproduction. And by killing off the wolves, mountain lions and coyotes there was not an adequate check on the deer and elk population which soon increased beyond the number for which there was food. As a result, they frantically chewed on the young growth of every tree within reach on the mountainside and killed off the forest so thoroughly that the snow melted and ran off in eroding streams early in the summer, leaving the grass lands dry and parched later in the season, because the water had

*Presented at the Sixteenth Annual Convention of the American Scientific Affiliation held at Houghton, New York, August, 1961.

**Dr. Kreider was with the U. S. Army Quartermaster Research and Engineering Center, Natick, Massachusetts. Present address is U. S. Army Research Institute of Environmental Medicine, Natick, Massachusetts.

J

not sunk in and become added to the water table."

By such action man has decreased the potential food supply which is already short in many parts of the earth. It is very essential that the indifference of the past concerning the destruction of other living things, be replaced by a planned farming of the land and water and proper disposal of harmful wastes. With an increasing human population, the balance of nature will become more difficult to maintain and could conceivably be the limiting factor on human population growth. Lack of food would serve as a stressful situation decreasing the general health and vitality and the reproductive potential.* This is supported by many studies concerning the effects of stress on the body (7).

Sociopsychological environment

Apart from these limiting factors of the physical environment are the physiological effects on the physiology of the sociopsychological stresses which exist in a society of high population density. No one needs to be convinced that man suffers from social and emotional tensions and stresses. The development of peptic ulcers and the ejection and riddance response of the large bowel give evidence of harmful results of nervous stresses. Wolff (8) described this ejection and riddance response. He said "a given subject confronted by overwhelming environmental demands may elaborate a pattern of ejection. Thus a person who has taken on more than he can handle or feels inadequate to the demands of his life situation or a thwarted person filled with hatred, defiance, contempt and the unconscious need to be rid of a threatening or overwhelming situation, yet passive withal, may suffer from diarrhea." This person though outwardly calm is "sitting on a powder keg" of intense hostility, resentment and guilt. This "ejection response" is a sign of mental disorder and breakdown. Dr. Wolff also states that it is the pressure of competition for social position and economic security that shortens man's life over that of his wife who is spared much of this by the pattern of our present social structure. There is also some evidence that stress hinders reproductivity in humans. Menstrual upsets during emotionally stressful periods or the development of pregnancy after a change of environment in women who previously did not become pregnant are the most obvious examples.

It would seem axiomatic that as our population density increases so would also increase these same pressures and tensions of life which would then certainly be "stressor agents" in the General Adaptation Syndrome of Selye (7). The following is a brief explanation of the general response to stress. Normal healthy animals, including man, at rest demand of their bodies only a low level of activity. There are, however, numerous stressor agents such as nervous tensions, wounds, infections, poisons, cold, and muscular exercise which produce a high level of activity. One specific function or structure may be affected more than others, but there

will also be a general increase of the level of many functions. The body attempts to overcome the stimulating effects of these stresses and return to the original resting level or "steady state" even though the stressor agents are still there. In this the nervous and endocrine systems play a particularly important part. The General Adaptation Syndrone is the total of the changes caused by the stress plus the body's adaptive reactions. This syndrome develops in 3 stages: (1) the alarm reaction. This is the initial response to the stress. An example of only one of the many functions that might be affected in general, is the blood pressure. A sudden sharp change, either increase or decrease, might be expected in this stage. (2) The stage of resistance. Here the individual continues to perform in spite of the heavier load and increase in the rate of "wear and tear." To follow through on our example, the blood pressure would return towards normal. If the stress persists long enough, the third stage would ensue. (3) The stage of exhaustion. Here there is failure of certain functions. It would appear that reserve energy is drawn from those functions less immediately vital to the individual, such as reproduction, growth and resistance to infectious disease and parasitism in order to supply energy for the essential functions. However, if the stressor is not withdrawn other functions may be affected and incapacitation and death may result.

Pure sociopsychological factors in a population of high density serve as stressor agents producing deterioration of numerous reproductive functions, decrease of resistance to disease, and actual death so as to regulate population growth. (9, 10). However, only experimental evidence for the deterioration of the reproductive capacity will be presented here. Thus as early as 1931 Crew and Mirshaia (11) compared the reproductive functions of numerous small laboratory animals in dense populations with those of animals in sparse populations, and reported that in high population densities reproduction of female mice was depressed. Also when male albino mice, which have been segregated since weaning, are placed together in groups of 1, 4, 8, 16, 32 per cage for a week, there is atrophy of the gonads and sex accessories in the dense populations, which progresses more or less linearly as the logarithm of the population increases. Similar results were obtained in populations of wild house mice (9).

Andervont (10) reported that in a group of females, estrus cycles began at an earlier age, were more frequent and lasted until a greater age in segregated mice than in their litter mates kept in groups of 8 each in a normal mouse cage. In another series of experiments, no young were produced and no females became visibly pregnant when mice were crowded 20 males to 20 females to a cage for 6 weeks, although abundant food and water were available. When the population size

*There is a contrary viewpoint that the reproductive capacity is increased in hunger as a result of the attempt of nature for preservation of the species. (De Castro, Josue, *The Geography of Hunger*, Little, Brown and Co., Boston, 1952)

was reduced to 10 males and 10 females all of the females became pregnant, but the number of implanted ova was reduced significantly and only 7 of the 10 females developed pups (9). The remainder lost their progeny in utero during the early stages of pregnancy. The onset of pregnancy was also considerably delayed in these animals. Therefore, there was decreased fertility, decreased implantation and a marked increase in intro-uterine mortality. Futhermore, after the young were born, there was a decrease in lactation in white mice and voles as measured by the weight of the young in comparison to the young of a group of mothers not previously crowded (9). In males where the weight of the reproductive organs is indicative of reproductive stimulation and capacity there was a decrease in organ weight. Finally the results show that some small animals respond to increased population density by a depression of reproductive function at all stages of the processes.

The effect of social stress within a population was also studied by comparing the socially dominant and subordinate animals. When house mice are placed together there is immediate fighting, which soon ceases with the establishment of a social hierarchy with one mouse dominant over the other and another subordinate to all of the others. The remaining mice arrange themselves in some sort of hierarchy in between. The subordinate animals were frequently placed under stress of having to cower before the more dominant animals. It was found that the reproductive organs were heavier and reproductive performance was best in the socially dominant females in each population even though they were obliged to fight more to maintain their status (9).

Christian (9) studied these effects on reproductivity and also the evidence of decreased resistance to disease and increased mortality which result from sociopsychological stresses in a population of high density, and concluded that the underlying mechanism involves the neuroendocrine system. He describes the process as follows: Social pressure works through the hypothalamus of the central nervous system and the anterior lobe of the pituitary gland to stimulate three basic actions of the "alarm reaction." They are as follows: (1) decrease of production and release of growth hormone, (2) decrease of production and release of gonadotrophins, and (3) increase of production of the adrenocorticotrophic hormone (ACTH). These responses represent the "stage of exhaustion" and produce their effects in the following way (Figure 1): As a result of the decrease in growth hormone there is a withdrawal of the stimulus for growth and metabolic activity which in turn suppresses antibody production, phagocytosis, inflammation and granulation eventuating in decreased resistance to disease and increased mortality. This then has the effect of slowing or limiting the population increase. Through another basic response to stress, a decrease in gonadotrophins, there is a withdrawal of stimulus to

the reproductive organs so that there is a suppression of spermatogenesis, estrus and sex steroids which decreases fertility, fecundity, maturity, and lactation. As a result, the population increase is checked by a second effect, a decrease in the birth and survival of new individuals. Through the third mechanism, an increase in ACTH stimulation, there is an increased production of corticosteroids by the adrenal cortex. This potentiates both of the previous effects: the suppression of metabolism, which decreases the resistance to disease, and, at the same time, depression of reproductive function. The result is further decrease in population through a decrease in birth and survival of new individuals and an increase in the death rates.

Much evidence for the above pattern is found in animal studies (9) but little definitive knowledge is available for humans. Even though there are many parallels in the responses of animals and humans, caution must be exercised in applying these mechanisms to man. However, even if they do apply to man it is hoped that the human population will never become so dense that these mechanisms will be called into operation to any large extent since it would result in an increase in the incidence of nervous and degenerative diseases and in early death.

From the foregoing discussion it may be concluded that as the population increases the physical factors of the environment such as food, water, atmosphere, and living space will become more critical and may limit the population. At the same time social and psychological stresses will increase and may produce a reduction of reproductive capacity, resistance to disease and longevity through neuroendocrine pathways as implied from animal studies.

- Adolph, E. F., and Associates. Physiology of Man in the Desert. Interscience, 1947.
- 2. Benedict, F. G. A Study of Prolonged Fasting. Carnegie Institute of Washington, 1915.
- 3. Clarke, George L. Elements of Ecology. Wiley, 1954.
- 4. Prindle, R. A. In Farber, S. C., and R. H. L. Wilson. The Air We Breathe A Study of Man and His Environment. Thomas, 1961.
- Andy, J. R. In Farber, S. M., and R. H. L. Wilson. The Air We Breathe - A Study of Man and His Environment. Thomas, 1961.
- 6. Milne, L. J., and M. Milne. The Biotic World and Man. Prentice-Hall, 1958.
- 7. Selye, H. The Stress of Life. McGraw-Hill, 1956.
- 8. Wolff, H. G. Stress and Disease. Thomas, 1953.
- Christian, J. J. In Gorbman, A. Comparative Endocrinology. Columbia U. Symposium, Cold Spring Harbor, Wiley, 1959.
- 10. Andervont, H. B. "Influence of environment on mammary cancer in mice," J. Nat. Cancer Inst. 10,579. (1950)
- 11. Crew, F. A., and L. Mirskaia. "The effects of density on an adult mouse population." Biol. Generalis. 7,239. (1931)

Psychology

Modern Techniques, Centuries Old In Geel, Belgium

Stanley E. Lindquist, Ph.D.

Centuries ago, a young princess fled from Ireland because of the incestious advances of her father who was king. She finally ended her trip in Geel, Belgium, where with her retinue she set up housekeeping.

Her father continued searching for her and she finally was found. His solution to the problem was to behead her and the priest who had helped her escape. Many legends were created about things that happened where the beheading took place. The legends were unimportant, but the results of the notoriety in a sense caused the creation of one of the most unusual mental hospitals in the world.

Mentally ill people came to the place of her beheading and were purportedly cured, during the 6th century. As the stories of the healing spread, the numbers of people visiting increased. Gradually funds were accumulated from grateful people to build a church. The people came, some were "cured" and some stayed, being called "pilgrims," the first time this term was used.

The exact time community treatment was started is unknown. It is presumed that some families came with one who was not well, and stayed for a time, visiting the shrine, praying for a cure. However, the cure being delayed in some cases, the family would arrange for the one who was ill to stay in the home of a family near, for a fee, while the patient continued visiting the shrine. This became the basis for the present day treatment of the mentally ill.

As the influx of people grew, the church was expanded to include some rooms where the more violently ill could be kept until they would become well enough to go into a home. These facilities were soon outgrown and a general hospital near by opened a section for this purpose. Eventually a separate hospital was built, which has about 400 beds at the present time.

Occupational therapy, wherein the patients worked on the small farms, sewed, or performed small manufacturing operations; group therapy, in which the one or two patients, members of the family, and a visiting supervisor took part; family group therapy, in which the whole "family" talks over the problems of adjustment; social therapy, the change of the environment and surroundings; all of these "new" methods have been used through the centuries at Geel!

Geel is a town of 25,000 people, spread over a considerable area. Most of the land is taken up by small farms. It is beginning to be urbanized with more and more people working in factories in neighboring towns. This is having the effect of possibly causing a deterioration of the climate necessary for the unusual treatment procedures.

There are 2,500 patients in the community. One out of 10 are mentally ill or retarded. At one time the concentration was as high as one patient to six normals. The usual procedure followed is for the patient to be admitted to the central hospital for physical examination and diagnosis. After an orientation period, the patient would be placed in a home usually on a farm in the community. Here he would meet his foster "mother" who would be his primary "therapist." Sometimes the patients would be much older than their "mother."

Usually there are two patients in a home, housed with an average family, often with young children. Typically the mother and father would have been reared to maturity where two mental patients have lived. When these grown children set up their own home, they also take mentally ill people into their family. Sometimes in long term treatment, the patient may be "inherited" from their parents who have died or who can no longer care for them. The kind and loving treatment that is so effective in calming the patients is passed on from generation to generation.

The basic premise of this procedure is that association with a healthy personality will have a healing effect on the mentally ill person. The main burden of this is carried by the foster "mother," as the husband is out working during the day. This woman is typically a relatively uneducated person who has learned techniques of caring for any aberrations that might occur. The family has especially the quality of sharing deep and inclusive love of the individual, for their financial remuneration is not equivalent to the cost and trouble that is involved. This is one of the finest demonstrations that I have seen of Christian love.

The cost of this operation is phenomenal according to American standards. The government pays the hospital 56 francs (\$1.02) a day for the total care of the patients. This includes everything; clothes, bedclothes, food and lodging. The hospital administration then pays the families that care for the patient from 40c to \$1.20 per day, depending on the degree of illness and amount of care required. The patients that require little care and are helpful on the farm, are in the 40c category. Most patients would be in the middle bracket. Imagine a per patient day cost of this figure in America.

The town is divided into sections. Each section has a central bath house. A psychiatrist is in charge of a section, and visits the home about once a month. A male nurse visits every two weeks with two nurses assigned per section. Emergencies and special treatment are handled in the central hospital. This is the extent of the "formal" therapy. The secret of the treatment is re-

lated to the density of the patient population, according to Dr. Radamaekers, the Medical Director. If it gets much lower than the 1 to 10 ratio of the present, the patients may be lost in the crowd of the town. As of now, the townspeople are aware of the patients, and know what to do if there is bizarre behavior. However if the concentration becomes less, Dr. Radamaekers is afraid that the unique features of the treatment will be lost.

A visit to this hospital is heart-warming. Dr. Radamaekers seems to fit in the pattern of most European psychotherapists in that he has little use for the mechanistic viewpoints of Freudian psychoanalysis. He is a sincere and dedicated man who is especially concerned with the personality and interest of the patient, explained and understood in a parsimonious manner.

He keeps firm control of his widespread hospital primarily through a meeting of all the staff every morning. Each nurse reports on what he has discovered the previous day to the whole group. Any new developments or interesting experiences are discussed freely. Thus each member of the staff is constantly being educated and trained in treatment procedures.

Once a week changes in placement are discussed. If a patient is involved he comes to the meeting himself, and gives his own viewpoint, and states his desires which are carefully considered. No moves are made without this procedure. Each patient is treated with respect and consideration.

Dr. Radamaekers spent the morning talking and taking me to visit several of the homes where patients were staying. It was possible to converse with them, ask questions as to their treatment and to speak to the members of the families. When finished, Dr. Radamaekers invited me to his home for a fine lunch, where I discovered that he too, had a patient living with him.

Dr. Radamaekers received some of his training in Cleveland, Ohio. When I expressed my appreciation to him for his kindness and consideration, he spoke warmly of the Americans. He said he was happy to have Americans visit him, and that he felt he owed so much to America for his training. As he spoke his eyes filled with tears.

The good Doctor retires next year. I wonder if his successor will have the same vision and capacity. Truly, the future of this centuries-old treatment will depend on this.

Sociology

RUSSELL HEDDENDORF, M.A.

Sociology: A Defense Part II

In a somewhat disparaging comment, a recent Christian publication referred to an article in *Newsweek* of December 11 which indicated the convergence in the field of social science with Christianity. The main point of attack was that "new" principles were first stated in the Bible and science has merely become of an *ex post facto* nature. Referring to the "newly" conceptualized scientific view of human nature, the article stated "two propositions have emerged: The first is that nations, like individuals, can go insane. The second is that aggression is innately rooted in human nature."

It is true, as the article states, that these propositions were originally stated in the Bible. What would seem to be of more significance, however, is the fact that the Biblical image of the sinfulness of man and society can be corroborated by social science. Nor is this an entirely new scientific view. What is needed is confidence that additional convergence will be forthcoming; that the social scientist may find that he is pressed to accept an image of man and society which is compatible with that held by the Christian.

There are hopeful signs that such views are already being accepted. In a challenging article, a highly respected sociologist has recently defended the need of a Christian image of man being used in more accurately interpreting social phenomena.2 In the opening paragraph, Kolb sets the tone for his paper by stating, "It is, I think, a sign of the times that a person who considers himself a professional sociologist and who wants to remain in communication with his colleagues dares write a paper in which he suggests that an image of man rooted in one of the strands of the Judeo-Christian tradition may be better suited to the ordering of sociological data than those models currently in use."3 The pivotal significance of such an image for the future indicates the inadequacy of our present naturalistic view of man. Kolb acknowledges this when he states, "Naturalistic humanism and its image of the rational free man who can empirically and scientifically choose his ultimate commitments is still a live option in American thought, although perhaps, not as live as it once was. But it cannot enter in the present discussion of sociological orthodoxy and a Judaic-Christian image of man."4

Unlike the article in *The Prairie Overcomer*, Kolb reflects the accumulated knowledge which has brought us to this present view which is, indeed, not new. It has a history based upon behavioral psychology and the philosophical views of social contracts. In sociological writings it has taken the form of the individual's motivation and the problem of social control.

Motivation and Morality

The Christian argument for a synthesis of man and society provides a bilateral approach. First, man may use his freedom to resist the molding influence of his environment and, by deviating, bring about change in society. This is the approach recommended by Kolb. Second, man's willfulness causes disruption in society and must be brought under the control of moral precepts. This is the approach used by Parsons in discussing the problem of social integrity and upon which we will center our interest now.⁵

It was Malinowski who first framed the functional problem of group survival in terms of needs which had to be met.⁶ Starting on the individual level, he stressed the biological needs which caused cultural responses. To allow the individual's needs alone to be met, however, would bring about the extinction of society. Hence, the survival of the group results in the formation of derived needs which require the individual to conform.

Parsons' statement develops the essential work of Malinowski, stressing the personality of the individual. Parsons' view of individual motivation is that there is not sufficient desire on his part to do "right." Such a tendency is a threat to the stability of the social system which must find means of defending itself by establishing a system of values to which the individual must conform. The existence of the society is threatened if there is not a minimal performance of this behavior.

Although Parsons' view of the individual's lack of motivation is far removed from the Christian understanding of sin, there is the need in both cases to be socialized to a system of external values. For the Christian, such a system would consist of the principles of the Gospel while the sociologist would view these in terms of moral principles. Whether the present sociological view would approach the Christian view would depend upon the extent to which the society is a totally Christian system.

Present sociological theory, therefore, would rule out a purely biological or psychological determinism of individual behavior. It would indicate the limitation of such a unilateral determinism by stressing cultural needs. Though such a social determinism is not entirely favorable to the Christian, it points in the right direction, for it verifies the inherent weakness of the individual and allows for a convergence of the two views when it is the Christian society which is the determining system of values.

Even such statements of determinism as these are not sufficient to explain social action. It has been stated in the preceding article of this series that the rational determinism expressed in utilitarianism no longer provides an adequate frame of reference. Present theory has conceptualized various "random elements" which interpose themselves into the normal working order of the social system. Although the average sociologist would probably consider such elements to be on the same level as "luck," there is sufficient flexibility to allow for a Christ-

ian interpretation of God working in the social affairs of men. Hence, the final result of a particular social act cannot be fully predicted with our present knowledge. Since there would probably always be a margin of error in making the prediction, the limitation of empirical social knowledge would be postulated.

The Randomness of Social Action

If social action is not solely determined by biological or psychological forces, neither does society restrict it to inflexible forms. Not only does society allow the individual to be in error, but it often causes him to follow patterns which are not the most efficient for his needs at that time.

Davis has succinctly summed up the problem of rationality in his statement of the three main sources of error, which are superempirical ends, haziness of ends, and ignorance.7 As long as people are motivated toward goals which exist beyond life, there is no way in which the society can "prove" that the requisite action needed to achieve those goals is correct. It should be noted here, incidentally, that Davis does not consider superempirical ends to be accidental or random in a society. Rather they are permanent, universal and, in some social interpretations, useful. The ignorance of ends should be apparent in our modern society, especially to the scientist. By haziness of the end, Davis refers to the uncertainty as to whether a casual factor will actually produce the expected result. There is inability to control all of the variable factors which may affect the outcome.

To this point, it would seem that there is no boundary which is imposed on the possibilities of variation. As in the problem of motivation, however, it is morality which is the main limiting factor. Not only must the individual want to do what is best for society, he must be willing to forego some of his desire to experiment with new and diverse forms of action. Davis refers to such limitations as normative restrictions. In practically every society, such restrictions would be referred to as morality, for they control not only ends but means and direct action toward the benefit of others. As indicated previously, there is much room here for a Christian interpretation of society. If "morality" is necessary for the welfare of any society, then the Christian definition becomes one of the many interpretations which would be acceptable.

Unanticipated Consequences of Purposive Social Action

Returning to Davis' concept of the "haziness of the end," it could be suggested that any system of cognition which could also minimize the error in a cause and effect relationship would be superior to a system which didn't. Christianity seems to have a strong advantage over purely moral systems in this respect. The ability to trust in God's wisdom as a controlling factor in the outcome of action provides the Christian with the opportunity to minimize the effect of error in achieving ends. When it is realized that in a Christian system superempirical ends are accepted as normal objects of motivation, it can be

seen that the problem of rationality is not of great consequence. Motivation toward rational ends is of secondary importance and God's purpose makes error unimportant.

When seen as one form of Thomas' wish for new experience, the haziness of the end develops a more positive character. It was in this light that Merton first conceptualized the term "unanticipated consequences of purposive social action." The uncertainty of the future provides a source of excitement and adventure. More than that, seeking for the new and unexpected results in change which is often the essence of progress. Such a view of social action is epitomized in the Separatist Movement of England, particularly the Pilgrims, and the development of many sects before and since. Similarly, it would seem to be the basis of individual Christian action today. This motivation for creative deviancy, therefore, affords a significant opportunity for Christianity to fit into patterns of current social action theory.

The earlier statement of Kolb's argument for this point of view indicates an approximate closure of the cycle. The next article in this series will consider his plea for Christian freedom and deviancy in society. By way of summarization of the problem of motivation and

morality, however, the following points should be stressed. Contemporary views of social action do not accept deterministic theories based on biology or psychology. Nor is there complete social determinism because of individual weakness of motivation to achieve social goals. The main socially determining factor is in the form of morality which limits variation and provides direction for individual choice of ends. Society, however, not only provides opportunity for individual and social error, but also may cause error. Reliance on superempirical knowledge, therefore, may remove such error and provide for greater efficiency in social action.

¹The Prairie Overcomer, Vol. 35, No. 2, Feb. 1962, p. 42. ²William Kolb, "Images of Man and the Sociology of Religion," Journal for the Scientific Study of Religion, Vol. 1, No. 1, Oct. 1961, pp. 5-22. A more detailed review of this significant article will be presented in a future column. ³Ibid. ⁴Ibid.

⁵Talcott Parsons, *The Social System*, The Free Press, 1951, pp. 26-45.

⁶Bronislaw Malinowski, A Scientific Theory of Culture, University of North Carolina Press, 1944.

⁷Kingsley Davis, *Human Society*, Macmillan Company, 1948, pp. 128-133.

⁸Robert Merton, "The Unanticipated Consequences of Purposive Social Action," American Sociological Review, Vol. 1, Dec. 1936.

Biology IRVING W. KNOBLOCH, Ph.D.

The Origin and Evolution of Life

Most textbooks on biology discuss the characteristics of life and show that non-living "things" do not possess these characteristics in exactly the same way. Thus there is apparently a gulf between the animate and the inanimate. We know that life, whatever it may be, is situated in the material we call protoplasm in the cell. At the recent (1961) A.A.A.S. meetings at Boulder, some biochemists were quoted as saying that the question "What is Life?" is obsolete. They, no doubt, based their belief on the fact that the structure of the selfreplicating DNA molecule in the nucleus of the cell has been almost determined (Watson-Crick model). Reproduction has always been one of the distinguishing characteristics of living things and now that we have reproducing, or self-replicating nucleic acids and proteins, we have solved the riddle of life (so they say). It must be pointed out that this chemical replication goes on only in cells and so it would seem that we are almost back where we started. A classic example quoted is the virus, an organism consisting of a nucleic acid core and a protein sheath. Viruses duplicate themselves prolifically. Harold Blum points out that* "What is to be noted in the present connection is that the virus particle is not a self-replicating machine but depends for its replication upon the metabolism of the host cell—the host cell is always a part of the machine—so, if the term living molecule is used to describe a virus, one runs the risk of having it accepted in a more complete sense than it should be."

Another point of confusion is the equating of the presence of a self-replicating mechanism with its origin. These are really two different aspects of life. The late John von Neumann had no difficulty imagining a self-replicating machine but he could not conceive of a machine that could create itself. Scientists have already created amino acids and are working on the long, hard road to the making of proteins. After they have made complicated proteins, they will not have created life because even the most radical of biochemists do not think of fats, carbohydrates and proteins when divorced from the cell as exhibiting the characteristics of life.

Blum also points out that the *origin* of life has some relationship to the *evolution* of life. Natural selection has been constantly evoked as a necessary force in evolution inasmuch as living systems constantly compete and only the fittest survive. Now if we grant that the elemental particles grouped themselves in molecules of a simple sort and eventually into proteins, fats and carbohydrates, it is difficult to imagine this as other than pure chance. In other words, it is hard to place natural selection anywhere in this chemical evolution picture. The elimination of natural selection from some part of the organic cycle does not seem to be a major catastrophy to some of us but the all-or-nothing proponents of Charles Darwin's theory of selection are likely to spend many a sleepless night over it.

*"On the Origin and Evolution of Living Machines"—Amer. Sci. 49:474—501 (1961)

BOOK REVIEWS

Protestant Thought and Natural Science, by John Dillenberger, 310 pages, \$4.50, Doubleday & Co. 1960. Reviewed by I. W. Knobloch.

This is a very fine book with detailed analyses of movements and men but the details are restricted, with few exceptions, to non-scientists, to Lutherans and to members of the Reformed Churches. Thus it cannot be a complete analysis of the situation as the title might indicate. Luther, Calvin, Barth and Tillich are given very adequate coverage. There are many others mentioned, however, whose ideas I found more invigorating than any of the four mentioned above.

I shall not attempt to separate Dillenberger's ideas from those he quotes but simply mention a few novelties in the book to acquaint the reader with its ideas and possibly whet his mental appetite. One of these ideas (old to most people) is that if there is life on other planets, would this not demand innumerable crucifixtions? My personal reaction to this was that this might not be so unless other planets' inhabitants possessed the conditions of choice and free will that our ancestors did. Or if they had free will, possibly they had more will power than Adam and Eve. Another idea concerned itself with miracles. A common belief is that miracles produce faith, but the reverse is true, according to Dillenberger. My belief on this is that both sequences are not only possible but no doubt have occurred. A third bit of gossip concerns Luther's belief that not all the passages and books of the Bible were on the same plane and that some were more reliable than others. The infallibility angle was not introduced by either Luther or Calvin but by their more zealous (?) followers. He mentions that Luther is credited with an attack upon the Copernican Theory but that Luther may not have written this himself. I believe that historians of theology will find the book interesting.

Darwin and the Modern World View, by John C. Greene, Louisiana State University Press, Baton Rouge, 1961. 141 pp.; \$3.50.

Reviewed by Walter R. Hearn, Associate Professor of Biochemistry, Iowa State University, Ames.

This book contains the substance of the three Rockwell Lectures given at Rice University in the Spring of 1960, by Iowa State University's Professor of the history of science. Dr. Greene's recent book on the history of evolution and its impact on Western thought, The Death of Adam, first published by the Iowa State Press and now available also as a ninety-five cent Mentor paperback, has already been recommended to readers of this Journal (March 1960) by the present reviewer. Still writing as a historian of ideas, Greene now turns from the impact of Darwin on the natural sciences to

his impact on theology and the social sciences. He identifies three overlapping phases in the modern conflict between science and religion: challenge to belief in the inspiration and inerrancy of the Bible; second, challenge to the doctrine of creation; and currently, the question of the adequacy of scientific methods in the study of man and society. "All three phases of the conflict are still very much with us, the intensity of each phase varying in different regions of the country and on different educational levels. Darwin was not the sole, or even the chief, cause of the debates which raged, and still rage, around these issues, but his writings have been of major importance in them."

The chapter on "Darwin and the Bible" is particularly pertinent to discussion among members of the American Scientific Affiliation about interpretation of Scripture. It is good for us to see what conclusion a historian comes to after reading the A. S. A.'s Evolution and Christian Thought Today: "As science advances, the maintenance of what these writers call 'verbal inspiration' is likely to prove possible only by continual reinterpretation of the Bible. In the long run, perpetual reinterpretation may prove more subversive of the authority of Scripture than would a frank recognition of the limitations of traditional doctrines." Although his own theological position is not explicitly stated in the book, the author's concern to maintain "the authority of Scripture" in some form or other can be seen in his sympathetic treatment of the theological controversy over the doctrine of absolute inerrancy. He examines the development of the Roman Catholic position, the modernist-fundamentalist clash, and finally the "rethinking" that has gained momentum in such diverse camps as Anglicanism, neo-orthodoxy, and postmodernist liberalism. The emerging concept that revelation is not a body of propositions supernaturally communicated, but rather a series of events in which God disclosed Himself by His action in history is apparently adequate to the author; I must admit that his statement concerning this position is satisfying to this reviewer: "The Bible, then, is divinely inspired in the sense that God illuminated the minds of the authors of Scripture, enabling them to respond to His self-disclosure in the events, but thoroughly human in that this illumination did not overcome the limitations of finite, historically-conditioned minds and temperaments." Perhaps if he had said "did not completely overcome" these limitations, the statement would be acceptable to most of us in A. S. A. The concluding sentence of the chapter indicates that neither Darwinian ideas nor higher criticism can undermine this kind of authority of the Scriptures: "Science and scholarship may influence conceptions of revelation and inspiration, but they cannot resolve the question whether the Bible is in truth what believers say it is, a record of God's self-disclosure in history."

In the chapter on "Darwin and Natural Theology" Greene observes that "physicotheology" based on a static world view and typified by the writings of John Ray (1691) and William Paley (1802) was rendered obsolete by Darwin's coup de grace. He then examines some post-Darwinian natural theologies—those of a typical protestant modernist, of various neo-orthodox writers, and of Roman Catholic scholars. Modern biologists and paleontologists who object to theistic interpretations of evolution are then taken to task for inconsistently allowing teleological expressions to occur in the midst of their scientific writings. Julian Huxley is criticized in particular, but without malice or sarcasm. The sympathetic attitude of Dr. Greene toward the dilemma of anti-theistic evolutionists is as obvious and as welcome to this reviewer as his sympathetic treatment of the problems of fundamentalist theologians. This is the kind of book that heals wounds and builds bridges of understanding. Can it be, the author asks, that the persistence in current evolutionary writing of a teleological vocabulary, plainly at odds with the philosophical beliefs of most biologists, suggests that they sense a creative element or ground in the evolutionary process, however much their philosophical preconceptions may dispose them to deny its reality?

Finally, in the chapter on "Darwin and Social Science" the difficulties that a reductionary scientific outlook gets into when man is the object of study are clearly brought out, and Darwin is charged with contributing to misconceptions "whose evil effects we still combat." The specific charges are these: Darwin reinforced Herbert Spencer's emphasis on competition as the source of social progress; he minimized the differences between man and animals; he encouraged the idea that the methods of natural science are fully adequate to the study of human nature and society; he ignored "the moral ambiguity of progress" and allowed himself to think that science could support itself without philosophy and religion. In spite of these charges, Professor Greene feels that Darwin deserves a place among the few greatest contributors to human knowledgealthough his scientific work could settle nothing in either philosophy or theology. In the brief concluding chapter the reason for this failure is explained by the relation of science to world view: "A scientist is a person seeking insight into the harmony of things. The harmony and the human spirit seeking to comprehend it are there first. They are pre-scientific. Darwin seems never to have grasped the implications of this fact. He had profound intuition of the harmony of nature, of her 'endless forms most beautiful and most wonderful,' but he distrusted his intuitions. He distrusted them, his autobiography shows, because he feared that they could be explained scientifically as holdovers from man's animal past. Having doubted the reality of spirit, he suffered the spiritual consequences of his doubt. There is no escape from reality, least of all from spiritual reality."

This is at least the second book by an "outside observer" to mention the American Scientific Affiliation specifically, the other being Religious Beliefs of American Scientists by Edward LeRoy Long, Jr., published in 1952 by The Westminster Press of Philadelphia. Long devoted an entire short chapter to the A. S. A., discussing Modern Science and Christian Faith and taking a critical look at the abstracts of papers given at our 1949 annual meeting. He observed an apparent difference in approach among two groups within the A. S. A., one group being concerned about deeper problems of science and faith, the other group concentrating on peripheral issues. Ten years later, John Greene recognizes the wide variety of opinion with respect to evolution and its bearing on the Bible expressed by the authors of Evolution and Christian Thought Today, and concludes that "even fundamentalism has not been as monolithic and impervious to change as most people think." "The verbal inspiration of Scripture is still maintained, but interpretation within this framework allows for a limited amount of organic development and even for a general evolutionism in some cases." It is unfortunate, in the opinion of this reviewer, that all of our own members are not pleased to see a diversity of interpretation within our doctrinal framework. Specifically, I was disappointed to see The Genesis Flood by Henry M. Morris and John C. Whitcomb, Jr. (Presbyterian and Reformed Publishing Co., Philadelphia, 1961) written from a narrow and argumentative viewpoint. I happen to disagree with the conclusions of Morris and Whitcomb on almost every point bearing on my own field of study; however, the polemic style of their book I find much more disturbing than the fact that in my opinion they are basically wrong. The implication in their introduction that those who disagree with their interpretation do so primarily out of intellectual and moral pride is hardly conducive to open-minded discussion of the issues!

NEW MEMBERS

Kenneth A. Anderson, 10831 South Tripp Avenue, Oak Lawn, Illinois, is Project Manager in the General Engineering Department of American Oil Company, Whiting, Indiana. He holds the B(CE) degree from the University of Minnesota.

Eugene F. Apple, 844 Cranbrook Drive, Cleveland 24, Ohio, is employed as a research chemist in the Lamp Division of General Electric Company, Cleveland. From Pennsylvania State University he holds the B.S. degree, with a major in Chemistry, and the Ph.D. degree, received in 1955, in Inorganic Chemistry.

Lawrence E. Bach, 6 Elmcrest Circle, Ithaca, New York, heads the Ithaca High School Science Department. He holds the B. S. Degree in Forestry from the College of Forestry, Syracuse University, and the M.A. Degree in Science Education from Albany State Teachers College.

Lucien Bagnetto, Jr., 4501 Bridle Road, Bartlesville, Oklahoma, is employed as a chemist by Phillips Petroleum Company. He holds the B.S. degree from Harding College, Searcy, Arkansas, with majors in Chemistry and Bible, and in 1948 he received the M.S. degree from Louisiana State University, Baton Rouge, with a major in Chemistry.

James H. Benedict, 7920 Gaines Road, Cincinnati 39, Ohio, is a chemist for Proctor and Gamble Company at their Ivorydale Technical Center, Cincinnati. In 1944 he received the B.A. degree in Chemistry from New York University, and in 1950 he received the Ph.D. degree in Biochemistry from the University of Pittsburgh.

Philip L. Berg, 2720 Fourth Avenue South, Minneapolis 8, Minnesota, is a case worker in the Public Assistance Division of the Hennepin County Welfare Department, Minneapolis. He attended the University of North Dakota where in 1955 he received the B.A. Degree in Social Science, and the M.A. Degree in Sociology in 1957.

Margaret H. Blom is a Physical Science Aide with the U.S.D.A. Agricultural Research Service, Alaska Experiment Station. She holds the B.A. Degree from the University of Western Ontario.

Kenneth Creston Bonine is a design engineer for General Dynamics-Astronautics. He holds the B.S. degree in Physics from San Diego State College. His residence address is 8867 Armorss Avenue, San Diego 11, California.

Andrew C. Bowling, 141 Lexington Street, Auburndale 66, Massachusetts, is now finishing study for his Ph.D. Degree which he expects to receive this summer from Brandeis University. In 1960 he received the M.A. Degree in Mediterranean Studies from Brandeis. He holds a B.A. Degree in Philosophy from the University of Cincinnati, and attended Dallas Theological Seminary one year.

C. Henry Bradley, 114 Catherine Street, Ithaca, New York, is a missionary translator with Wycliffe Bible Translators, Inc., Santa Ana. He is temporarily a graduate teaching assistant at Cornell University where he is a candidate for the Ph.D. Degree in Linguistics. He holds the B.A. Degree in Greek and the M.A. Degree in New Testament from Wheaton College.

Sara E. Bryan, 4442 Shalimar Drive, New Orleans 26, Louisiana, is an instructor of chemistry at the Louisiana State University in New Orleans. She holds the B.S. degree in Nutrition from Auburn University, and the M.S. degree in Biochemistry from Baylor University.

Frederic W. Bush, 25 Newton Place, Framingham, Massachusetts, holds the B. A. Degree in Chemistry from the University of Washington. He received the B.D. Degree in Theology in 1958 and the Th.M. Degree in Old Testament in 1960 from Fuller Theological Seminary. He is now finishing studies at Brandeis University for the M.A. Degree in Mediterranean Studies.

Charles R. Campbell, Jr., Route 4, Box 284, Vienna, Virginia, is a Patent Examiner for the United States Patent Office, Department of Commerce. He holds the B.S. degree in Electrical Engineering from Union College, Schenectady, New York.

Jack M. Carlson, 341 Woodrow Avenue, Modesto, California, is a graduate of San Jose State College where he received the A.B. Degree in Chemistry in 1936. In 1937 he received the M.A. Degree in the same field from Stanford University. He is employed at the Modesto Junior College.

David A. Carson, 917 Timber Lane, Vienna, Virginia, is a science teacher in the Fairfax Christian School, Fairfax, Virginia. In 1961 he received the A.B. Degree in Philosophy from Gordon College. He also holds a B.D. Degree from the Reformed Episcopal Theological Seminary.

Eugene R. Chenette, 5922 Hackmann Avenue N.E., Minneapolis 21, Minnesota, is an assistant professor in the Electrical Engineering Department at the University of Minnesota. He received the B.S., M.S. and Ph.D. degrees in Electrical Engineering from the University of Minnesota.

Wai Yiu Cheung, is a teaching assistant in the Department of Biochemistry at Cornell University, Ithaca, New York, where he is doing post graduate work. He holds two degrees in Agronomy: the B.S. degree from the College of Agriculture, Taiwan, and the M.S. degree from the University of Vermont.

Paul J. Christian, 1559 Asbury Street, St. Paul 13, Minnesota, is a graduate of Wheaton College where he received the A.B. Degree in Zoology. He holds the Ph.D. Degree in Entomology from the University of Kansas. Dr. Christian is Associate Professor of Biology at Bethel College and Seminary, St. Paul, Minnesota.

Moody L. Coffman, 1832 N.W. 17th Street, Oklahoma City 6, Oklahoma, heads the Department of Physics at Oklahoma City University. He is also vice president of Acoustic Controls, Inc., Abilene, Texas. He holds the following degrees: Ph.D. in Physics from A. & M. College of Texas; M.S. in Physics from University of Oklahoma; M.A. in Mathematics from University of Oklahoma; B.A. in Mathematics from Abilene Christian College, Texas.

Gary R. Collins, 505 Evergreen, West Lafayette, Indiana, is a graduate student and graduate teaching assistant in the Department of Psychology at Purdue University, Lafayette, Indiana. He received the B.A. Degree at McMaster University. After receiving the M.A. Degree in Psychology from the University of Toronto, he studied one year at the University of London (England) in the field of social psychology. At Purdue he is now working toward the Ph.D. Degree in clinical and experimental psychology.

Robert H. Conkling, 256 South Marengo, Pasadena, California, is the owner of two businesses: Marengo Lodge and Western Printing Company, both in Pasadena, and both operated for the purpose of financing research in Christian evidences. He holds the B.A. degree in Anthropology from The University of California at Berkeley, and the B.D. degree from Fuller Theological Seminary.

Richard G. Cornell, 1912 Sherwood Drive, Tallahassee, Florida, is an associate professor of Statistics at Florida State University. He holds the following degrees: Ph.D. in Statistics from Virginia Polytechnic Institute, received in 1956; M.S. from the same school, also in Statistics; A.B. from University of Rochester, with a major in Mathematics.

Marvin L. Darsie, 865 Muskingum Avenue, Pacific Palisades, California, is a physician. He holds the following degrees: the A.B. Degree in Botany from the University of California, Los Angeles; the Ph.D. Degree in Biology from Stanford University; the M.D. Degree from the University of Southern California School of Medicine.

Richard Allen Dirks, from Meservey, Iowa, is a Graduate Assistant Laboratory Instructor at Drake University, Des Moines, Iowa. He graduated from Wheaton College in 1959 with a B.S. in Geology. He is working now toward the M.A. degree in Physical Science at Drake University, and hopes to finish this summer.

Roy Z. Eby, Route 1, Gordonville, Pennsylvania, is a statistician employed by Smith, Klien & French Labs, Philadelphia. He is a graduate of Goshen College with a B.A. Degree in Mathematics, and has done additional work at the University of Chicago in the field of Statistics.

Ivan J. Fahs is Associate Professor of Sociology at Greenville College, Greenville, Illinois. He holds the following degrees: Ph.D. in Sociology from Cornell University, received in 1960; M.Ed. from Cornell received in 1955; B.A. in Bible received from Wheaton College in 1954.

Paul D. Fairweather, 2205 North Mar Vista, Altadena, California, is Associate Professor of Counseling and Psychology at Fuller Theological Seminary, Pasadena, California. He holds three degrees from the University of Southern California: the B.S. degree in Business, the M.S. degree in Education, and the Ph.D. in Counseling and Guidance. For the past two years he has done post-doctoral work in Counseling and Clinical Psychology at U. S. C. He also has a B.D. degree from Fuller Theological Seminary.

Harry F. Frissel, 167 West 27th, Holland, Michigan is Professor of Physics at Hope College. He graduated from Hope College in 1942 with an A.B. Degree in Physics. He holds the M.S. and Ph.D. Degrees in the same field from Iowa State University.

M. David Gause, 705 North Killingsworth, Portland 17, Oregon, is a pre-med student at Cascade College. He attended Yakima Valley College one year before coming to Cascade in 1958.

George Giacumakis, Jr., 51 Roosevelt Street, Maynard, Massachusetts, is a graduate student at Brandeis University, Waltham, Massachusetts. He holds the A.B. Degree in Hebrew and Greek from Shelton College, Ringwood, New Jersey, and the M.A. in Mediterranean Studies from Brandeis University. He is presently completing his Ph.D. residency at Brandeis.

John D. Gifford is an instructor at Evangel College, Springfield, Missouri. He holds the A.B. degree in Mathematics from Syracuse University, and the M.S. degree in Geology from Oklahoma University.

Paul Jacob Haney, 1301 Kings Highway, Winona Lake, Indiana, is a missionary with the Sudan Interior Mission. He is employed as a chemistry teacher at a high school operated by the mission. He holds the B.A. degree in Chemistry from Wheaton College, and has done additional work in Missions and Bible, at Columbia Bible College, and in Chemistry, at Syracuse University.

Philip H. Harden, is Associate Professor of Biology at Roberts Wesleyan College, North Chili, New York. He received the Ph.D. in Zoology in 1949 from the University of Minnesota. He also holds the M.S. degree in Zoology from U. of Minnesota. From Greenville College, Greenville, Illinois, he received the A.B. degree in Biology in 1935.

Dean Owen Harper, 3806 Vine Street, Apt. 4, Cincinnati 17, Ohio, is an acting instructor in the Chemical Engineering Department of the University of Cincinnati. He holds the B.S.Ch.E. and M.S. in Physical Chemistry from Purdue University. At the present time he is working toward the Ph.D. Degree in Chemical Engineering at the University of Cincinnati, and he hopes to complete his work in June, 1963.

William Neill Hawkins, P. O. Box 717, Dallas 21, Texas, is an ordained minister and has been the Field Secretary for the North Amazon area of the Unevangelized Fields Mission. He holds the B.S. degree in Zoology from Wheaton College.

Daniel L. Hine, 5508 South Seventh Street, Arlington 4, Virginia, is a colonel in the Ordnance Corps of the U. S. Army. He graduated in 1933 from the United States Military Academy (West Point) with the B.S. degree.

Paul D. Hoeksema, 7085 Willard S.E., Grand Rapids 8, Michigan, is an instructor in Grand Rapids Christian High School. He holds the A.B. degree in Biology from Calvin College, and the M.S. degree from Michigan State University.

Wayne M. Hood, 508 Liberty Street, Ashland, Oregon, is Assistant Professor of Science at Southern Oregon College, Ashland. He received his academic training at Oregon State University where he received the B.S. and M.S. Degrees in General Science and the Ed.M. Degree.

Kenneth B. Hoover, Grantham, Pennsylvania, is Professor of Biology and Chairman of the Division of Natural Sciences at Messiah College. He holds the A.B. Degree in Sociology from John Fletcher College, the M.S. Degree with a major in Zoology from Kansas State University and the Ph.D. Degree in Botany from Penn. State University.

Lucile E. Hoyme, 1805 Monroe Street, N.E., Washington 18, D. C. is an anthropological aid with the U. S. Government. She is employed in the Division of Physical Anthropology, U. S. National Museum (Natural History), Smithsonian Institute. She holds the B.Sc. Degree in Zoology and the M.Sc. Degree in Biology from George Washington University. She studied two years at Oxford University and is currently working on her D.Phil. thesis (in absentia) in Physical Anthropology.

Stephen K. T. Hsu, 59 Webb Avenue, Detroit 2, Michigan, is a senior engineer with Bendix Corporation, Research Laboratories Division. He received the B.E. Degree with a major in Aero.E. from National Tsing Hua University. From Cornell University he received the M.Aero.E. Degree in 1950. He attended Columbia Bible College 1½ years, studying Bible and Missions.

Thomas R. Humphrey, 12619 Preston Way, Los Angeles, California, is a career resident in Pathology at the Veterans Administration Hospital, Wadsworth. He obtained his pre-med training at Canisius College and received the M.D. Degree from the University of Buffalo School of Medicine.

John D. Ingold, P. O. Box 501, Accra, Ghana, West Africa, is Master of Biology and Physical Education at Accra Academy. He received the B.S. in Education in 1959 from Goshen College, and the M.S. Degree in 1961 from the University of Illinois with a major in Biology.

Ulric Jelinek, 52 Seminole Way, Short Hills, New Jersey is president of Severna Manufacturing Corporation, East Orange, New Jersey. He holds the B.S. in Electrical Engineering from Newark College of Engineering, as well as the M.Ed. degree from Rutgers University. He has had two years of graduate work in metallurgy at Brooklyn Poly Tech. Institute.

Alfred Johnson, 137 Custer, Evanston, Illinois, is a biology teacher at North Park Academy, Chicago. He holds the B.A. degree from Northwestern University.

Jennings O. Johnson, 220 10½ Street S.E., Rochester, Minnesota, is assistant principal at John Marshall Senior High School in Rochester. He holds the B.S. degree in Natural Science and the M.A. degree in Administration from the University of Minnesota.

Haven E. Jones, 2105 Godwin S.E., Grand Rapids, Michigan, is an orthopaedic surgeon. He attended Antioch College and the University of Michigan. In 1950 he received the M.D. degree from the University of Michigan Medical School.

Frank Richard Karner, E-65-C Stadium Terrace, Champaign, Illinois, has been a half-time graduate teaching assistant at the University of Illinois while working toward the Ph.D. degree in Geology. He holds the B.S. degree in Geology from Wheaton College.

Ralph S. Kendall, 1440 Rock Creek Ford Road N.W., Washington 11, D. C. is a patent examiner in the United States Patent Office. From Pennsylvania State University he received the B.S. degree in Chemistry in 1951, and from George Washington University he holds the LLB degree.

D. Wayne Kornhaus, 37 South Fourth Street, Rittman, Ohio, is a science instructor in the Rittman School System. He is a graduate of Goshen College with a B.A. Degree in Chemistry.

Carl W. Kruse, 4307 S.E. State, Bartlesville, Oklahoma, is a Group Leader in the Research Division of the Research and Development Department of Phillips Petroleum Company. He received the A.B. Degree in Chemistry from Bethany Nazarene College; the M.S. Degree in the same field from the University of Kansas; and the Ph.D. Degree in Organic Chemistry from the University of Illinois.

William R. Lang, 2031 Locust Street, Philadelphia 3, Pennsylvania, is Associate Professor of Obstetrics and Gynecology at Jefferson Medical College. He earned the A.B. degree (pre-med) at Temple University, and the M.D. degree from Jefferson Medical College.

John Chung Lee, 123 State Street, West Lafayette, Indiana, is a graduate student at Purdue University in the field of Biophysics. In 1961 he received the B.A. degree with majors in Physics and Mathematics from Taylor University.

Micah Wei-Ming Leo, Ste. 6, Valleyview Apartments, Brandon, Manitoba, Canada, is a Research Officer with the Canada Department of Agriculture. His academic degrees are as follows: the B.S. in Agr. Chem. from the University of Taiwan; the M.S. Degree in Agronomy from the University of Rhode Island; the Ph.D. Degree in Soils from Rutgers University.

Hulon Matthews Madeley, 1608 Iowa Street, Norman, Oklahoma, is a graduate assistant at the University of Oklahoma. He holds the B.S. degree in Geological Engineering from Texas A. & M. College and is now working toward the M.GE. degree at the University of Oklahoma.

Richard Allen Mansell, 810 South 33rd Street, South Bend 15, Indiana, is employed at Bethel College, Mishawaka, Indiana. He holds the B.A. degree in Science from McMaster University, Hamilton, Ontario. Joseph Martin, Jr., 6707 93rd Street, Edmonton, Alberta, Canada, is presently completing medical school at the University of Alberta, Edmonton. He holds the B.Sc. Degree from Eastern Mennonite College.

G. Eric McAllister, 2602 25th Street, Santa Monica, California is Computer Applications Administrator for Douglas Aircraft Company. He earned the B.A. degree in Mathematics in 1949 at McMaster University, and the M.A. degree in Statistics from the University of California, Los Angeles, in 1951. He is now working toward a Ph.D. in Statistics, Mathematics and Computing at the University of California, Los Angeles.

Harold P. McGinnes, 815 Smith Drive, Normal, Illinois, is a physician and surgeon practicing in Bloomington, Illinois. He holds the B.Sc. Degree with a major in chemistry from Michigan State College, and the M.D. Degree from the University of Michigan Medical School. In addition, he spent three years in General Surgical Residency in Grace Hospital, Detroit, Michigan.

Russell M. McQuay, Jr., 707 Wenonah Avenue, Oak Park, Illinois, holds the following positions: Parasitologist at Mount Sinai Hospital of Chicago; Instructor in Parasitology at Chicago Medical School; and Consultant at West Suburban Hospital, Oak Park, Illinois. At Mount Sinai Hospital he is engaged in parasitologic studies on missionaries and their families. Dr. McQuay received the A.B. Degree in Biology from Bucknell University and the M.S. and Ph.D. Degrees from Tulane University of Louisiana in Parasitology and Bacteriology.

John M. Miller, 2 Eleanor Avenue, Fairbanks, Alaska, received the BSEE degree in 1960 from the University of Alaska. He is now employed by the Geophysical Institute of the University of Alaska as station manager at the NASA Minitrack Facility.

Clyde William Moore, from Elkhart, Indiana, is now engineer for missionary Radio Station 4VEH in Haiti. He holds the B.A. degree in Mathematics from Goshen College, and has studied Speech at Bethel College, Indiana, and Electronics at Purdue University. His present address is Box 1, Cap haitien, Haiti, W. I.

Alvin J. Moser, 422 East Seminary Avenue, Wheaton, Illinois, is an instructor in sociology at Wheaton College. He received the Th.B. degree from Nyack Missionary College in 1951, the A.B. degree in Social Science from Florida Southern College in 1958, and the M.A. degree in Social Welfare from Florida State University in 1960.

George F. Myers, 5807 30th Avenue, Hyattsville, Maryland, is an electronic engineer (electro-magnetics) at the Naval Research Laboratory. He holds the B.S. Degree in Electrical Engineering from George Washington University.

John Thomas Netterville, 3427 Stokesmont Road, Nashville, Tennessee, is acting chairman of the Department of Chemistry at David Lipscomb College. In 1951 he received the B.S. degree in Chemistry from David Lipscomb College; in 1956 the M.A. degree in Education from George Peabody College; and in 1961 the M.S. degree in Chemistry from the University of Mississippi.

Charles L. Niles, 943 South Bedford Street, Los Angeles 35, California, is Senior Engineer for Litton Systems, Inc., Guidance Systems Laboratory, Woodland Hills, California. He holds the B.S. degree with a major in Physics from Allegheny College, Meadville, Pennsylvania, and has also taken some courses at the University of Pittsburgh, University of Buffalo, and U.C.L.A.

William Lewis Nobles, Box 321, University of Mississippi, University, Mississippi, is Dean of the Graduate School and Professor of Pharmaceutical Chemistry. His degrees are as follows: B.S. in Pharmacy from University of Mississippi in 1944; M.S. in Chemistry in 1949 from the same university; Ph.D. in Pharmacy from the University of Kansas in 1952.

Peter B. Northrup, 10121 Riggs Road, Adelphi, Maryland, is employed by Inter-varsity Christian Fellowship. He attended the University of Michigan where he received the B.S.E. (Industrial-Mechanical) Degree in 1952 and the B.S.E. (Mathematical) in 1954. He holds the S.T.B. Degree from the Biblical Seminary in New York.

Robert H. Paine, 1056 Lake Street, Huntington, Indiana, is an associate professor and chairman of the Social Studies Division at Huntington College. In 1949 he received the M.A. degree in History from the University of Pennsylvania and in 1948 he received the A.B. degree in History from Wheaton College.

Mrs. Beatrice K. (Norvell L.) Peterson, Hickory Hill, Beverly Farms, Massachusetts, is a psychotherapist and psychodramatist in private practice with her husband. She received the degree in Nursing in 1947 from the New York University School of Medicine, Division of Nursing, Bellevue, and the A.A. degree in Philosophy in 1949 from George Washington University. She attended the Academy of Psychodrama and Group Psychotherapy, Beacon, New York from 1959-61.

Edward Piers, Ste 4: 9006 106th Avenue, Edmonton, Alberta, Canada, is a candidate for the Ph.D. degree in Organic Chemistry at the University of Alberta. He received the B.Sc. degree in Chemistry from the same University.

Everett W. Purcell, 12232 Diane Street, Garden Grove, California, is a research scientist with the Aeronutronic Division of Ford Motor Company, Newport, Beach, California. He is also a part-time instructor of Mathematics at BIOLA College, LaMirada, California. He has earned the B.S.E.E. and M.Sc. degrees at the University of Nebraska, and the M.Sc. degree in Aeronautical Engineering at the University of Southern Calfornia.

Allan Dean Randolph, 210 Aster Street, Trona, California, is employed by the American Potash Company as a research project engineer. He holds the B.S. degree in Chemical Engineering from the University of Colorado and the M.S. and Ph.D. degrees in the same field from Iowa State University.

Vernoy A. Reihmer, 400 West Vermont, Anaheim, California, is a practicing surgeon in Anaheim. He holds the B.S. degree with a major in Botany from Wheaton College; the M.S. degree in the same field from the University of Illinois; and the M.D. degree from the University of Illinois College of Medicine.

Richard C. Terman is Associate Professor of Biology at Taylor University, Upland, Indiana. He holds the following degrees: the A.A. in Science from Spring Arborn Junior College; the B.A. in Biology from Albion College, Albion, Michigan; and the M.S. and Ph.D. in Zoology and Ecology from Michigan State University.

Grosvenor C. Rust, 1409 West Walnut, Carbondale, Illinois, is Assistant Professor-Lecturer in Instructional Materials at Southern Illinois University. He holds the A.B. Degree in Anthropology from Wheaton College and the A.M. Degree in Education from the University of Chicago.

Eduard Harry Schludermann, Room 876, 1414 East 59th Street, Chicago 37, Illinois, is a graduate student at the University of Chicago, working toward a Ph.D. in biopsychology. He holds the B.Sc. in Chemistry and the M.A. degree in Psychology from the University of Manitoba.

Nolan D. Shipman, 171 East Fourth Street, Chillicothe, Ohio, is a Research Assistant in the Department of Biology at Asbury College. He expects to receive the B.A. Degree in Biology from Asbury this summer.

Mark E. Smith, 631 South 11th Street, New Castle, Indiana, is a physician-surgeon. He holds the B.S.Ch.E. degree from Northwestern University, and the following degrees from the University of Illinois: B.S. Med., M.D., and M.S. (Surgery).

Winston B. Smith, 1831 Red Coach Road, North Canton 20, Ohio, is Instructor of Biological and Physical Sciences at Malone College. He holds the A.B. Degree in Biology from Asbury College, and the B.D. Degree from Oberlin Graduate School of Theology. He has done additional work in Biology at Ball State and Kent State.

Jack Norman Sparks, 1208 24th Avenue, Greeley, Colorado, is Assistant Professor, Bureau of Research Services at Colorado State College. He received the B.S. Degree in Mathematics from Purdue University. From the State University of Iowa he holds an M.A. Degree in Educational Psychology, and the Ph.D. Degree in Secondary Education and Statistical Methods.

Charles W. Spencer, 24 South Terrace, Short Hills, New Jersey, is a member of the Technical Staff of Bell Telephone Laboratories, Inc. He graduated from Newark College of Engineering with a B.S. Degree in Mechanical Engineering.

Richard W. Stegner, 1941 Tenth Avenue, Greeley, Colorado, is working on his doctoral program at Colorado State College. He holds the B.S. degree in General Science from North Central College, and the A.M. degree in Physical Science from Colorado State College.

Lynn Stewart, 1200 Pomeroy, Manhattan, Kansas, is a graduate research assistant at Kansas State University in the Department of Biochemistry. He expects to receive the Ph.D. degree in Biochemistry this year. He holds the B.S. degree in Chemistry from Kansas University, and the M.R.E. degree from Southwestern Baptist Seminary.

Suzannah Tilton, Route 1, Box 342, Ashland, Ohio, is a high school chemistry teacher in the Ashland School System. She holds the A.B. Degree in Comprehensive Science from Marietta College, and attended Wheaton College one year, studying New Testament.

Norman E. Thompson, 78 Arlington Avenue, Bergenfield, New Jersey, is a biology laboratory instructor at The King's College. He holds the A.B. degree in Zoology from Columbia College, and expects to receive the M.A. degree in Science from Columbia Teacher's College this year.

Merville O. Vincent, 153 Delhi Street, Guelph, Ontario, Canada, is a psychiatrist. Besides his private practice he is affiliated with the Homewood Sanitorium. His academic preparation is as follows: the B.A. degree in

History from Acadia University, Nova Scotia, and the M.D. and C.M. degrees from Dalhousie University, Halifax, Nova Scotia. He spent four years in postgraduate resident training at the University of Michigan Hospital.

Walter V. Watson, 5461 Broadway, Lancaster, New York, is pastor of The Presbyterian Church of Lancaster, New York. He is also employed as school psychologist at Buffalo Bible Institute. He is a graduate (Phi Beta Kappa) of Hobart with a B.S. (c.l.) in English. He received the Th.M. Degree in New Testament from Pittsburgh-Xenia Theological Seminary. From Canisius he holds an M.A. Degree in History. He has done additional work at Syracuse University, principally in Social, Clinical and Differential Psychology.

Robert Louis Wenninger, 21 Greenwood Street, Cranston 10, Rhode Island, is a third-year medical student at Tufts University School of Medicine. He holds the B.S. degree in Pre-med., received in 1959 from Union College.

Elias D. White, 2350 Third Street, LaVerne, California, is pastor of the First Brethren Church of LaVerne. He holds the A.B. Degree in English from Ashland College (Ohio), and the Th.B. Degree from Ashland Theological Seminary; the M.A. Degree in Philosophy from Oberlin Graduate School; and the Th.D. Degree from Dallas Theological Seminary.

J. Francis Whiteley-Wilkin, P. O. Box 5227, Johannesburg, South Africa, received the D. Litt. Degree in 1959 from Abilene Bible College, and in 1960 the M.A., and D.D. Degrees from St. Andrew's University, London.

John L. Wilkins, 1101 North Clayton Street, Wilmington 5, Delaware, is a self-employed veterinarian and proprietor of Fell's Animal Hospital in Wilmington. He received the V.M.D. degree in 1952 from the University of Pennsylvania School of Veterinary Medicine.

Louis A. Willand, 107 Monument Street, Groton, Connecticut, is a teacher in the Groton Public Schools. She is a graduate of Barrington College with a B.A. in Bible, and is now working toward an M.S. Degree at the Willimantic State College.

John J. Wilson, CBR Defense & Materiel Branch, U. S. Army Cml C School, Fort McClellan, Alabama, is a First Lieutenant in the U. S. Army. He holds the BSEE degree from Washington University, St. Louis.

Thomas G. Wilson, 2413 Pickett Road, Durham, North Carolina, is an associate professor at Duke University. He holds the A.B. Degree in Engineering from Harvard College, and the S.M. and Sc.D. Degrees in Engineering and Mathematics from Harvard University.

NEW ASSOCIATE MEMBERS

- Duane R. Armstrong, 705 North Killingsworth, Portland 17, Oregon, is a pre-med student at Cascade College. He attended Yakima Valley Junior College for one year before coming to Cascade.
- John G. Balyo, 1126 Cleveland Heights Boulevard, Cleveland 21, Ohio, is pastor of the Cedar Hill Baptist Church, Cleveland. He holds the following degrees: D.D. from Grand Rapids Baptist Theological Seminary; B.D. from Grace Theological Seminary; LL.B. from Atlanta Law School; A.B. from Goshen College, Goshen, Indiana.
- Edward E. Burkman, Jr., 150 East Roberts Avenue, Wildwood, New Jersey, is a student at Asbury College where he is majoring in Biology.
- Robert T. Campbell is principal of the Sudan Interior Bible School in Nigeria, West Africa. He is an ordained minister and was a pastor in Wauseon, Ohio, from 1944-49. He holds the B.A. and M.A. degrees from Bob Jones College, with majors in Bible and Religion. His present mailing address is: S.I.M., Biliri, via Gombe, Nigeria, West Africa.
- James E. Carlson, 714 Paddock Court, St. Louis 26, Missouri, is a staff member for Inter-varsity Christian Fellowship. He holds the A.A. degree from North Park College, and the B.S. degree in Natural Science from the University of Minnesota.
- Lloyd S. Cochran, 5 Davison Road, Lockport, New York, is employed by Lockport Mills, Inc., where he is vice president in charge of sales. In 1923 he received the B.S. Degree in Economics from the University of Pennsylvania.
- David J. Eshleman, Box 481, Wheaton College, Wheaton, Illinois, is a college student. He has been an active leader in his home church in Parkesburg, Pennsylvania.
- Donald R. Fonseca, Africa Inland Mission, P. O. TORIT, Equatoria Sudan, Africa, is a missionary, and has been in Christian service since 1949. In 1953 he received the B.A. degree from Barrington College, where he majored in Missions.
- Gordon H. Fraser, Box 264, Flagstaff, Arizona, is president of the Southwestern School of Missions at Flagstaff. In 1958 he received the B.A. degree from California Baptist Theological Seminary, where he majored in General Education, and he has done graduate work in the field of Literature at Arizona State College. At the present time he is taking extension work in Anthropology from the University of Oregon.

- Ellen E. Goss, 709 James Street, Utica, New York, is a teacher in the Utica school system. She holds the B.A. degree as a History major from Wheaton College, and is now spending summers in further schooling at the American University, working toward the M.A. Degree in Government.
- Allen James Harder from Marshalltown, Iowa, is now a Junior at Wheaton College where he is majoring in Physics. He is a member of Sigma Pi Sigma and the National Physics Honor Society.
- James E. Haynes, Eight Oaks, Marbury, Maryland, is an industrial engineer at the U. S. Naval Propellant Plant. He studied Business Administration at Boston University and has completed several short courses in the Army Ordnance Management School.
- Wayne R. Rasmussen, 893 Fry, St. Paul 4, Minnesota, is a student at St. Paul Bible College, where he is majoring in Philosophy. He has studied two years at Bethel College, St. Paul, and one year at the University of Minnesota.
- Roy E. Rood, Route 2, Proctorville, Ohio, teaches chemistry and physics at the Ben Lippen School, Asheville, North Carolina. He holds the B.S.Ch.E. degree from Virginia Polytechnic Institute and the M.S.Ch.E. degree from the University of Florida. He also attended the Columbia Bible College for 1½ years.
- George Wilbur Salkeld, 424 West Dravus Street, Seattle 99, Washington, is a staff worker at Seattle Pacific College. He holds the B.S. degree with a major in Zoology from Seattle Pacific.
- Edwin Dwain Sigurdson, 8435 N.E. Glisan Street, Portland 20, Oregon, is employed by the Pacific Power and Light Company. He has completed one year at Multnomah School of the Bible in Portland, and plans to continue his studies there in September of this year.
- John W. Sullivan, 914 Rosewood Avenue, High Point, North Carolina, is Assistant Cashier for the Central Savings Bank in High Point. He is an active member of the Southside Baptist Church in High Point.
- Rev. Turner Tallaksen, 7513 Jervis Street, North Springfield, Virginia, is the pastor of an Evangelical Free Church. He holds the Th.B. Degree from Trinity Seminary and Bible College. He studied Greek one year at Northern Baptist Seminary, and Sociology one year at the University of Minnesota.
- H. Edgar Thoren, 13 Cayuga Street, Homer, New York is pastor of the First Baptist Church, Homer. In 1949 he received the B.A. degree from Eastern Baptist, with a major in Bible.

Glenn E. Truitt, 8525 Fourth Avenue North, Birmingham, Alabama, is a student at Asbury College, Wilmore, Kentucky, where he is majoring in Biology. He attended Howard College two years before coming to Asbury.

George A. Walker, 3025 Idaho Avenue, Minneapolis 26, Minnesota, is Minister of Youth at the St. Louis Park Evangelical Free Church, Minneapolis. He attended Moody Bible Institute four years, followed by four years at the University of Texas where he received the B.S. degree in Education.

Howard D. Williams, 6035 Case Avenue, North Hollywood, California, is employed as a technical coordinator for Litton Systems, Inc., Beverly Hills. He has completed two years of study at Los Angeles Valley College.

J. Vernon Wheeless, 6409 Greenbriar, Houston 25, Texas, is the pastor of Rice Temple Baptist Church, Houston. In 1941 he received the B.A. degree from Baylor University, where he majored in Religion. In 1952 from the University of Houston he received the M.A. degree in the same field.

The announcement about Dr. Kanaar included in the December *Journal* was inaccurate. It should have read as follows:

Adrian C. Kanaar of 3881 Bailey, Buffalo 26, New York, is Chief Physiatrist at the Edward J. Meyer Memorial Hospital in Buffalo. He attended Dulwich College and St. Bartholomew's Hospital in London, England and graduated with a degree of M.R.C.S., M.R.C.P. He later received the M.B.B.S. and M.D. degrees at the University of London, the M.R.C.P. from the Royal College of Physicians, London, the F.R.C.S.(E) from the Royal College of Surgeons of Edinburgh, and the F.R.C.S.(C) from the Royal College of Surgeons of Canada.