

Creationism

Intellectual Origins, Cultural Context, and Theoretical Diversity

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To my parents

TABLE OF CONTENTS

INTRODUCTION

1. FUNDAMENTALISM AND SCIENCE

Pre-Millennialism
Protestant Scholasticism
Common Sense Philosophy
The Baconian-Newtonian Ideal of Science
Fact versus Theory
Bible-Science
Propositional Nature of the Bible
Literalism versus Inerrancy
Perspicuity of the Bible
Creationism as a Key Tenet of Fundamentalist Belief

2. ORIGINS OF MODERN “SCIENTIFIC” CREATIONISM: 1900-1960

George McCready Price
W.B. Riley and Harry Rimmer
Other Early Creationists
Early Debates
The Lull: 1940s-1950s
Early Creationist Organizations

3. THE MODERN CREATION-SCIENCE MOVEMENT

Henry Morris; The American Scientific Affiliation
Whitcomb and Morris’s Genesis Flood
The Creation Research Society
The Bible-Science Association
The California Textbook Disputes: 1969-1972
The Creation-Science Research Center
The Geoscience Research Institute
The Institute for Creation Research
Other Active Creationist Groups and Leaders

4. THEORETICAL ISSUES: SCIENCE, RELIGION, AND MORALITY

Attitudes Towards the Relationship of Christianity and Science
Bible-Science Harmonizations Prior to the 1920s
Fundamentalist Rejection of Compromise Harmonizations
Nomothetic Creation and Final vs. Secondary Causation
Presuppositions
Fundamentalist Dichotomies
Evolution as Man’s Escape from God
Chance versus Purpose and Design
Morality

5. DIVERSITY AND SPREAD OF CREATIONISM AND ANTI-EVOLUTIONISM

Religious Diversity: Protestant

Religious Diversity: Catholic

Religious Diversity: Jewish and Islamic

Creationism Internationally

Leaders, Followers, and Mid-Level Activists

Liberal-Conservative Spectrum of Bible-Science Beliefs

6. DIVERSITY OF CREATIONIST THEORY

Young-Earth Creationism

Gap Theory

Day-Age Theory

Revelatory Theory

Framework Theory

Progressive Creationism

Omphalos Theory

Gap Theory: Recent Advocates and Variants

Day-Age Theory: Recent Advocates and Variants

Other Old-Earth Creationist Theories

Regional Flood Theories

Biblical Creationism versus Scientific Creationism

Post-Millennialism and Christian Reconstructionism

The Cosmomic Movement

CONCLUSIONS

BIBLIOGRAPHY

Creationism: Intellectual Origins, Cultural Context, and Theoretical Diversity

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A study of creationism as a belief system, examining the intellectual background and origins of creationist theory, its cultural context, including its relationship to other fundamentalist beliefs and to scientific theory, and its theoretical diversity. Given the presuppositions on which it is based, creationism forms a coherent, generally self-consistent and logical system of belief, though contradicted by modern (evolutionist) science. Fundamentalist attitudes towards science and fundamentalist opposition to evolution are largely a consequence of particular religious beliefs and doctrines. Despite necessary agreement on core concepts (biblical inerrancy, supernatural creation by God), creationism is especially subject to diversification and proliferation of competing lower-level theories and subsidiary hypotheses. These theories differ widely regarding the extent and application of biblical literalism, the date of creation (the age of the earth and of mankind), the nature of the Genesis Flood, the relation of biblical truth to scientific evidence, underlying eschatological assumptions and doctrines, biblical hermeneutical principles, and attitudes regarding science and external evidence. Creationist theories are therefore continually elaborated on, diversifying and proliferating as a result of the development of their own cultural logic and as a response to evolutionist challenges and reactions.

INTRODUCTION

This is a study of the creationist movement emphasizing creationism as a belief system. I present and examine many of the ideas and theories of the creationists in an attempt to understand how these beliefs fit together with other aspects of religious fundamentalism, and to understand the reasons why evolution is so strongly opposed. In doing so I assume that these beliefs follow some sort of logic and form a more or less coherent and understandable system. The actual fundamentalist religious beliefs, and their origins, must be taken into account in order to understand the intellectual background of creationist belief.

In the first chapter I examine some of these beliefs and show how they contributed to the rise of fundamentalist opposition to evolution. In the second chapter I discuss the nature of early twentieth-century creationism, before, during, and after the heyday of fundamentalist activity in the 1920s. The third chapter is a description of the modern creationist movement. The fourth chapter discusses some theoretical issues involving various fundamentalist attitudes regarding the relationship of science and religion. The last two chapters emphasize the diversity of creationist belief: religious, national, and social diversity, plus the varying degrees of literalism (chapter five); and finally the various different major types of creationism (chapter six).

My own research has been of two main types: “participant observation” and extensive study of creationist literature. My “participant observation” has included graduate-level courses and field trips at the Institute for Creation Research, which is generally acknowledged as the leading “creation-science” institution. I have described a week-long field trip to the Grand Canyon, which was offered as a graduate-level biology/geology ICR field study course, in a separate article (McIver 1987a). Also, I have taken a graduate-level science education course at ICR, attended several ICR Summer Institutes, and have spent much time reading and studying in the ICR Library, the ICR Museum, and elsewhere on campus. Besides this considerable time at ICR, I have attended several National (and International) Creation Conferences (Cleveland, Pittsburgh, Seattle), plus many meetings of local creationist groups, and a variety of other creationist activities.

My other primary source of information has been a very wide-ranging study of creationist literature. In fact, almost as soon as I began spending time at the ICR Library, which has an extensive collection of creationist materials (very likely the best and most comprehensive collection anywhere), I realized that this kind of material merited far more attention. Analyses of creationism have overwhelmingly tended to focus on an extremely narrow range of creationist thought and literature—usually just a few books by ICR members or a few other prominent creation-science leaders. These are certainly the most important: they have had by far the greatest effect on the public. They are also quite widely known now. But my attention was drawn to the seemingly limitless numbers of other, lesser known works attacking evolution. These, I felt, were significant in part because of their sheer number, and because of the fascinating (and usually little-known) diversity they exhibited. The older literature (some of it readily available; much of it not) shed light on the background of the contemporary creation-science movement—the origins of the ideas which make up creationist theory. The newer literature demonstrates the myriad forms opposition to evolution can take, and expresses the often surprising and

sharp divisions within the creationist movement. I wrote a book-length annotated bibliography of this literature (McIver 1988a). Much of that literature forms the basis for discussion of various topics in this dissertation as well.

Related to this diversity, a theme which emerges, and which is of particular interest to cultural anthropologists, is the process of proliferation and diversification of creationist thought: the cultural and ideological elaboration of creationist arguments and theories. Creationist theory and ideology shows itself to be capable of elaborate and limitless variation. This evolution of creationist thought needs to be comprehensively explored and analyzed in both its historical and contemporaneous manifestations. The process which emerges is a continual fractionation of creationist ideology into competing and opposing theories, all the while responding to scientific and evolutionist developments and arguments in a kind of dialectic, by development of new theories and new variants in response to specific challenges, both internal and external.

In this sense the following study is notably different from conventional ethnographies of traditional societies in which theoretical and ideological evolution and elaboration is shunned, or at least not readily confessed to, by informants. By contrast, in this study, creationist believers, though they usually insist that truth is absolute, eternal, and obtainable by man through God's Word, must admit to the existence of vigorously competing schools of creationist thought and interpretation, which they are forced to confront intellectually and against which they spend much time and energy, and also to the existence and development of often sharply different theories in the past.

Thus, though creationism employs a cultural logic based on more or less shared cultural and intellectual traditions, and though creationist thought develops more or less logically given the underlying assumptions and presuppositions of these traditions, extant creationist theories continually change and diversify, segmenting and fissioning, both as a result of internal intellectual evolution and as a response to external (scientific and evolutionist) challenges. Each of these new forms of creationism in turn constitute a more or less coherent and logical system of thought and belief (again, given the presuppositions of the cultural traditions). But, there is no single or stable end product of creationist theory, despite the perennial exhortation of strict creationists to return "back to the Bible." (The creationist theories are "more or less" logical given their presuppositions, but each contains contradictions and logical weak points, even within their own systems of presuppositions and logic.) Since this is cultural rather than biological evolution, there is considerable feedback and cross-fertilization between theories rather than simply lineal descent, and also much re-discovery of past theories.

This theoretical flux may seem odd at first, given the creationist insistence on adherence to God's single and unchanging Truth as embodied in His Word, the Bible. But this paradox is only apparent. Theories and ideologies in traditional cultures, after all, do change (though usually not as much); it is just that, in contrast to this present study, this change and diversification is generally not visible—it is either lost in the past, or denied in the present. Not so with creationism, which is based upon religions of the Book, the written Word. The Book, indeed, remains the same. But there are different versions and translations. There are also hundreds of years of interpretation, exegesis, and elaboration: all also preserved in the written word, and thus available for all (more or less) to see and to debate. Creationism is not so much denominational as sectarian and even, in many cases, cultic. There are many institutions—seminaries, Bible institutes,

creation-science organizations—devoted to development and propagation of ideology and theory. The consequence is continuing open and vigorous debate about doctrinal and ideological differences. Doctrinal and exegetical specialists spend lifetimes interpreting Scripture, and in developing theories which maintain it against competing theories and against external threats such as evolution. These theories, in turn, become widely available to contemporary and future readers, and become part of the available ideological resource pool. And the anthropological analyst as well can study all of these; he can also study the specific personal, historical, and sociocultural context of these various theories and ideological developments.

Thus, while there is general agreement about the core creationist concepts—the absolute inerrancy of the Bible, and supernatural creation by God rather than descent of living species from common ancestral forms—there is widespread divergence of subsidiary, lower-level hypotheses. Given the nature of fundamentalism (its dichotomizing view and claim to possession of absolute Truth via the Bible), disagreement regarding these subsidiary theories among various creationist schools and factions is taken very seriously. Competing theories are held to be un-biblical, dangerous and false.

CHAPTER 1

FUNDAMENTALISM AND SCIENCE

PRE-MILLENNIALISM

Protestant fundamentalist creationism constitutes by far the largest, most vocal, and certainly the most important opposition to evolution. Fundamentalism became a “movement” in the United States around the time of the First World War, but its sources—its theoretical and doctrinal underpinnings—go back decades earlier.

One important element in the development of fundamentalism is the doctrine of dispensational pre-millennialism, which became the predominant eschatology in twentieth-century fundamentalism. From the mid-eighteenth century to the Civil War, America was predominantly post-millennialist. That is, it was believed that Christ would return to rule on earth after the Millennium, which would be established as the result of the victory of Christianity in this world. This post-mill view, strongly associated with the revivalist tradition so important in American history, was promoted by most of the important religious leaders. They viewed the triumphant progress of Christian civilization as proof that God’s Kingdom would be established on earth; that America was Zion. Post-millennialism was, and is (it has been revived of late: see later discussion), essentially optimistic.

During the nineteenth century, however, the theological doctrine of dispensational pre-millennialism was developed and promoted at various Bible conferences. Pre-mill eschatology takes a pessimistic view of earthly existence. It holds that the world is becoming less, not more, Christian; that evil is triumphing, and that God’s Word will be rejected by most who hear it. Christians cannot establish God’s Kingdom here on earth; America is not Zion but Babylon. The best that believers can do is to save as many souls as possible from this sinking ship (a favorite metaphor) of our evil civilization. During these Last Days, Satan will flourish and God will pour out his wrath upon the fallen world. Armageddon is at hand. (Depending on which interpretation one follows, born-again believers may be “raptured” into heaven before, during, or after the great Tribulation which precedes Armageddon.) Only after this descent into utter defeat will Christ return to earth to personally establish and rule over the Millennial Kingdom.

A key ingredient in this pre-millennialism is “dispensationalism”: the notion that history is divided into distinct stages or eras (“dispensations”), each governed by a different covenantal relationship between God and man. Cyrus Scofield, a lawyer who later became a Congregational minister, played an important role in popularizing this view. Scofield’s annotated Reference Bible was extremely influential in shaping the doctrines and beliefs of modern fundamentalism. The *Scofield Reference Bible KJV* presented dispensational pre-millennialism in its authoritative notes and comments, and it is largely through Scofield’s influence that the fundamentalist movement has been so strongly premillennialist. Scofield also presented and popularized the Gap Theory of creationism (see later).

The dispensational view made possible a more literal interpretation of the Bible. Bible passages which seemed to contradict others when interpreted literally could be explained as referring to different dispensations. Dispensationalists also added a preoccupation with Bible prophecy to the doctrinal mix which was to become twentieth-century fundamentalism. The prophetic passages were interpreted as factual, propositional statements which could be systematized by careful study to yield actual dates and events of God's Plan of History—future as well as past.

Most of the early fundamentalist—and creationist—leaders were dispensational pre-mills. Arthur Pierson, early advocate of “Bible-science” and author of *Many infallible Proofs* (1886); John Roach Straton, Baptist minister and celebrated anti-evolutionist debater; W.B. Riley, Baptist founder of the World's Christian Fundamentals Association and author of books such as *Inspiration or Evolution?* (1926); Harry Rimmer, Presbyterian minister and flamboyant Bible-science advocate and debater; Gerald Winrod, founder of Defenders of the Christian Faith and author of *Science, Christ and the Bible* (1929): all were committed to pre-millennialism. George McCready Price, who re-invented Flood Geology and “scientific” young-earth creationism in the beginning of this century, was, as a Seventh-day Adventist, committed to an apocalyptic millennialism as well; one of his last books, *The Time of the End* (1967), is straight eschatology: Bible prophecy, Revelation, Armageddon. (Fundamentalist pre-millennialism was in part inspired by nineteenth century Millerite movements, of which Seventh-day Adventism is a direct descendant: “adventism” itself is the belief that the world can only be saved by Christ's Second Coming, and that only a few believers will be saved from destruction prior to the Millennium.)

Clarence Larkin promoted dispensational premillennialism in his book *Dispensational Truth, or God's Plan and Purpose in the Ages* (1918, 1920), and also presented Gap Theory creationism. Arno Gaebelin also promoted the premill view; he was editor of *Our Hope*, an influential premillennial journal. His 1933 book *The Conflict of the Ages*, which is largely a warning about Bolshevism, described Satan's rebellion and continuing struggle against God, from which all present conspiracies stem. Gaebelin attacked evolution as a prime example of Satan's deceptions, and presented Satan's pre-Adamic Fall in terms of Gap Theory creationism.

More recently, Henry Morris, the leading proponent and chief theoretician of contemporary creation-science, is a firm advocate of pre-millennialism. It is a primary theme in Morris's *The Revelation Record: A Scientific and Devotional Commentary on the Prophetic Book of the End Times* (1983), a companion volume to his earlier (1976) work *The Genesis Record: A Scientific and Devotional Commentary on the Book of Beginnings*. In these books, Morris advocates the standard pre-trib pre-mill eschatology; he also stresses pre-mill doctrine in several sections of his book *The Bible Has the Answer* (1976; Morris and Clark 1987) and in other works. Wayne Jackson of Apologetics Press protested Morris's inclusion of pre-millennialism among the “Tenets of Creationism” in his own creation-science newsletter *Reason & Revelation* (Jackson 1985). Morris's article, which distinguished “scientific” from “biblical” creationism (see later), had, as a tenet of the latter, that:

The eventual accomplishment of God's eternal purposes in creation, with the removal of His curse and the restoration of all things to divine perfection, will take place at the personal bodily return to the earth of Jesus Christ to judge and purge sin and to establish His eternal kingdom. [1980:iv]

Jackson is a Church of Christ minister in Stockton, California. The Churches of Christ are “a-millennial”: they believe the Millennium is to be interpreted symbolically rather than literally; that it is a spiritual condition initiated by Christ in this age, and does not refer to an earthly reign. The fallacy in Morris’s pre-millennial scheme is its “failure to recognize the symbolic nature of the book of Revelation.” Jackson complains that creationism may be wrongly criticized or discredited by being so linked to pre-millennialism. “Again, we must absolutely stress that there is positively nothing in pure, biblical creationism which links it with premillennialism” (1985:4). But the traditional association remains strong.

PROTESTANT SCHOLASTICISM

Another component of fundamentalism and creationism is the Protestant scholasticism developed by the great Princeton theologians in the nineteenth century. This “Princeton theology,” strongly linked with Scottish Realism or Common Sense philosophy (most of the Princeton theologians were Scottish, or Scotch-Irish, Presbyterians), stressed an intellectual rather than emotional approach to religion. The Bible was a set of factual propositions. Like the facts of nature, the facts of the Bible could be proved true, and laws could be derived from biblical facts in the same manner as laws of nature were derived from scientific facts. Princeton theology insisted on *scriptura sola* (the Bible as the sole, and sufficient, source of revelation regarding religious faith and practice); this in turn assumed the “perspicuity” of Scripture (that the facts and truths of the Bible were plainly stated and directly accessible to all readers), which the Princeton theologians also emphasized. Facts, whether biblical or natural, were objective, discoverable, solid and unchanging entities, as were the laws derived from them. This view rested squarely on Baconian assumptions and the Scottish Common Sense tradition. As Marsden says (1980:111-112):

Such eternal truth, whether revealed in Scripture or in nature, was best refined by the scientific method. Baconianism appeared everywhere in the writings of the Princetonians, just as it did among American scientists of the era. The Princeton theologians saw themselves as champions of “impartiality” in the careful examination of facts, as opposed to “metaphysical and philosophical speculations” such as those of German Biblical critics. Following the precepts of Baconianism, the Princetonians described the proper function of science as “taxonomical,” or the gathering and classifying of facts. While dispensationalists used this method to classify the historical data in Scripture [“rightly dividing the Word of Truth”: e.g. Scofield 1896], Princeton theologians applied it more traditionally to the task of arranging theological statements. They often drew an analogy between theology and the hard sciences.

Barr, in his analysis of fundamentalism, made the same point:

It is a reasonable comment, therefore, to say that the fundamentalist conception of truth is dominated by a materialistic view, derived from a scientific age. This stress on the accuracy of the Bible in its material-physical reporting separates modern fundamentalism entirely from that older theology, such as the theology of Luther and Calvin, which it ill-informedly claims as its own forbear. It is possible to argue further that the chief doctrinal stream accepted in fundamentalism, the Princeton theology of the Hodges and Warfield, took its method expressly from the analogy of natural science, and that natural science as seen in a traditional Newtonian mould. This would suggest that fundamentalism, in its relations to science, might properly be criticized for attachment to an obsolete scientific model, perpetuated not through science itself but through its effect on the philosophical basis of doctrine as accepted by fundamentalists. [1981:93-94]

Charles Hodge, the renowned Princeton Theological Seminary preacher, author and editor, was perhaps the foremost exponent of this view. Hodge stated that theology was a science, and that the theologian was “to be guided by the same rules as the Man of Science.” Systematic theology is the classification of the facts in the Bible, exactly as natural science is the systematization of the facts of nature. In the section “The Inductive Method as applied to Theology” in his *Systematic Theology*, Hodge says:

The Bible is to the theologian what nature is to the man of science. It is his store-house of facts; and its method of ascertaining what the Bible teaches, is the same as that which the natural philosopher adopts to ascertain what nature teaches. [1883:10]

That method is the inductive method. Facts are gathered, then arranged systematically, so that general principle emerge. “It is the fundamental principle of all sciences, and of theology among the rest, that theory is to be determined by facts, and not facts by theory” (1883:14).

The true method of theology is, therefore, the inductive, which assumes that the Bible contains all the facts or truths which form the contents of theology, just as the facts of nature are the contents of the natural sciences. It is also assumed that the relation of these Biblical facts to each other, the principles involved in them, the laws which determine them, are in the facts themselves, and are to be deduced from them, just as the laws of nature are deduced from the facts of nature. [1883:17]

If natural science be concerned with the facts and laws of nature, theology is concerned with the facts and principles of the Bible. If the object of the one be to arrange and systematize the facts of the external world, and to ascertain the laws by which they are determined; the object of the other is to systematize the facts of the Bible, and ascertain the principles or general truths which those facts involve. [1883:17; also quoted in Marsden 1980:112, Barr 1981:272-273, Cavanaugh 1983:151]

Very much based on this view of truth, the Princeton theologians developed the doctrine of biblical inerrancy, which was to be so crucial to creationism and Bible-science and to fundamentalism generally.

This view of truth as an externally stable entity placed tremendous weight on the written word. If truth were the same for all ages, and if truth was apparent primarily in objective facts, then the written word was the surest means permanently and precisely to display this truth. ... At Princeton it was an article of faith that God would provide nothing less than wholly accurate facts, whether large or small. Common Sense philosophy assured that throughout the ages people could discover the same truths in the unchanging storehouse of Scripture. [Marsden 1980:113]

In his book *What Is Darwinism?*, published the same year (1874) as his *Systematic Theology*, Hodge rejected evolution as being absolutely unacceptable and unreasonable. He considered the Design argument incontrovertible, and interpreted Darwinism as being inexorably opposed to biblical supernaturalism, arguing that either Darwin was wrong or that God did not exist.

COMMON SENSE PHILOSOPHY

Scottish Realism, or Common Sense philosophy, was formulated by Thomas Reid, Adam Smith’s successor at the University of Glasgow, his follower Dugald Stewart at the University of Edinburgh, and other late-eighteenth and early-nineteenth century

Scottish professors. Rejecting the distinction between external objects and our ideas of such objects, they maintained that we could perceive the real objects as they actually existed. It was self-evident to them that our sense perceptions and memories constituted direct knowledge of the external objects and events themselves. They explicitly appealed to Baconian inductivism as a means of constructing necessarily true scientific principles free of metaphysical interpositions.

This Scottish Common Sense philosophy became the dominant tradition in America for the next century. Its first major exponent in this country was John Witherspoon,¹ who came from Scotland to become the president of Princeton in 1768. James McCosh, president of Princeton in the last quarter of the nineteenth century, was one of its last major academic advocates, outside of lay and fundamentalist circles where it still flourishes (McCosh became an effective advocate of Christian evolutionism, arguing in works such as *Christianity and Positivism* [1871] that the Bible taught a form of evolution).

The Common Sense Realism attitude was espoused by most fundamentalist anti-evolutionists, both in their approach to the Bible and to science. F. Bettex, for instance, in *Science and Christianity* (1901:3), wrote:

This book does not pretend to be a learned work for learned men. I address myself to simple souls thirsting after truth, that I may speak to them of great yet simple truths, which at the present day are too often stifled. I desire to express my profound conviction that the living and personal God of the Bible is the necessary center of a rational universe; that the Creator and his creation in no wise contradict one another; and that all the discoveries of science have been, and ever will be, powerless to prove that his Word deceives mankind. I wish to make clear to my readers how little real science is hidden behind the fine phrases and sounding words of the infidel, and how little he himself understands of the material creation which he affirms to be the only one. [1901:3]

“What is, then, the reason why so many Christians hold themselves aloof from modern science, and regard it with undisguised suspicion?” From ignorance of scientific methods, says Bettex, and fear of its technical terms and jargon. However, “a knowledge of the great questions which interest humanity is within the grasp of almost every one” (1901:112).

In studying science, then, the principal thing is to learn to discriminate between fact and explanation, to revere the positive fact, to test the explanation given. Where a reasonable, probable explanation, covering as far as possible (for none ever does so entirely) all the facts, is offered, accept it thankfully; but beware of the present craze for explaining everything. Why not when asked, “How do you explain that?” answer candidly: “I do not explain it at all. I study the facts, and wait.” [1901:137-8]

Philip Mauro, a New York lawyer who contributed to *The Fundamentals* (1910), the booklet series largely responsible for giving the fundamentalist movement its name, wrote in his later book *Evolution at the Bar* (1922) that its purpose was to “set forth the main features of the theory of Evolution in such away as to make it easy to be understood by the unlearned.” Mauro continued:

¹ Witherspoon was recently eulogized by Attorney General Edwin Meese, and is praised by other Christian Reconstructionists (see later) for his Calvinist views on church-state relations.

But the truth is that—when we disregard mere refinements of detail, and technicalities of a non-essential character—the doctrine of Evolution in general, and that of the Origin of Species (the Darwinian hypothesis) in particular, can be set forth “in words easy to be understood,” and can be understood by persons of ordinary intelligence and of common school education. And furthermore, the scientist and philosopher have no facts upon which to base their conclusions except such as are matters of common knowledge, or are accessible to all men through textbooks and cyclopedias. We fully concede to experts their special competence in investigating, clarifying, and setting forth the facts; but, in the all important matter of drawing conclusions from those facts, the expert has no greater ability than the ordinary persons, of whom juries—which in common-law cases are the sole ‘fudges of the facts—are composed. It is for the benefit of these that we are now writing; and in summoning Evolution to stand trial at the bar of ordinary common sense, our own function will be mainly to present the pertinent facts as fully and concisely as possible. [1922:7-8]

A somewhat bizarre modern reflection of this view is expressed by A.E. Wilder-Smith, a British-born creation scientist highly esteemed by creationists for his impressive scientific credentials (he holds three earned doctorates in chemistry and pharmacology). That God designed—created—the universe is a self-evident truth, which proves that evolution is utterly impossible. According to the Bible, he claims that (citing Romans):

refusal to accept something which is self-evident (such as the relationship between design and designer) brings with it an inevitable consequence. It has certain effects upon the very mechanism of our thinking, for it amounts to doing violence to the logic inherent in a delicate thought mechanism. [1970:234]

Wilder-Smith, in his “cybernetic approach to evolution,” declares that acceptance of the logically undigestible doctrine of evolution literally jams our thought-processes.

A logical but delicate mechanism like the brain needs to be fed on sound logic if it is to grow and prosper. But if it is fed nonsense (such as maintaining that randomness spawns code spontaneously [i.e., evolution]), then the logical thought mechanism is damaged and is no longer able to function normally and logically. It becomes futile in thought and darkened in senselessness. When one sees the present state of universities [Wilder-Smith taught in the U.S.], their student bodies and faculties, one wonders if the thought- and logic-deforming process has not proceeded a long way already. For so much that is occurring on our campuses can only be classified as thoroughly illogical and unreasonable. Perhaps this is the result of the “thought mills” becoming damaged by being fed on false intellectual fare for so long! [1970:235]

THE BACONIAN-NEWTONIAN IDEAL OF SCIENCE

Marsden has impressively demonstrated that “rather than being indiscriminately antiscientific, fundamentalism when examined as a belief system proves to reflect a striking commitment to the assumptions and procedures of the first scientific revolution” (1984:97). Fundamentalist creationists retain a Baconian view of philosophy and science, which they inherited, along with biblical inerrancy, from the Princeton theologians.

Isaac Newton, the apotheosis of the Scientist (at least until this century) professed to follow this Baconian approach:

Whereas the main Business of Natural Philosophy is to argue from Phaenomena without feigning [or “framing”] Hypotheses [“non fingo hypotheses”], and to deduce Causes from Effects, till we come to the very first Cause, which certainly is not mechanical... [Quoted in Gillispie 1951:6]

From this, Newton proves God the Creator. Similarly, notes Gillispie, Jean Deluc, a contemporary and opponent of Hutton’s geological uniformitarianism, appealed to

Bacon's scientific method "to reestablish Moses' claim to be a source of unquestionable scientific authority" (1951:62). Deluc, a Swiss Calvinist who moved to England, devised a Day-Age Flood Geology scheme.

Such appeals to Baconian and Newtonian ideals continued to characterize anti-evolutionist arguments; from the moment of the publication of Darwin's *Origin*, "one of the major objections to evolutionary theory was that it was not sufficiently 'inductive;'" (Hull 1973:vii).

Wigand, a German opponent and contemporary of Darwin's, wrote a three-volume work entitled *Darwinism and the Natural Science of Newton and Cuvier* (1874-1877). "Parading in the guise of natural science," he says of Darwinism, "it is really a perversion which bears within it a menace to true science." Wigand (according to Graebner (1943:295) argued that:

Darwin's doctrine is based on false premises and that its results do not agree with actual observation; that it is not even a scientific hypothesis but philosophical speculation; that it grossly offends against the principle of Causality and organic development.

George Ticknor Curtis, who, like Mauro, was a New York lawyer, wrote *Creation or Evolution? A Philosophical Inquiry* (1887), in which he discussed the nature of evidence and of proof. Mere piling on of great quantities of indirect evidence, which is what Darwin did, does not constitute proper proof. According to the rules of evidence, "every fact in a collection of proofs from which we are to draw a certain inference must be proved independently by direct evidence, and must not be itself a deduction from some other fact." Each link must have its own logical justification and proof. Also, the several facts must be arranged in proper relationship to one another. Further, the whole collection must then be consistent with the inference to be drawn. Finally: "the collection of facts from which an inference is drawn must not only be consistent with the probable truth of that inference, but they must exclude the probable truth of any other inference (quoted in Price 1920:37-38). Evolution doesn't measure up to these standards. "The whole doctrine of the development of distinct species out of other species makes demands upon our credulity which is irreconcilable with the principles of belief by which we regulate, or ought to regulate, our acceptance of any new matter of belief."

In *The Glacial Nightmare and the Flood* (1893), subtitled "A Second Appeal to Common Sense from the Extravagance of Some Recent Geology," Henry Howorth claims that what he proposes is of "no school of thought—merely an inductive argument from the facts"—unlike the speculative "religion" of uniformitarian geologists Hutton and Lyell. Howorth rejected the Glacial (Ice Age) Theory, insisting that the geological and paleontological evidence—especially the Siberian mammoths (Howorth 1887)—was explainable only as a result of a catastrophic (but not worldwide) flood. He is much cited by creationists for this, and for his compilation of Flood myths and traditions from around the world. He denied any special status to the biblical account, though, stating that it was "absolutely valueless in geological discussion," with no authority except as a collection of cosmological tales, myths and traditions.

In *Questions Evolution Does Not Answer* (1923:9), John Herget, a Baptist minister, explains that facts must be accepted, but not "philosophical opinions."

This book is the result of a purpose to find out what facts have been discovered by scientists to support the theory of evolution of organic life. I have tried to distinguish between the facts which they present and their deductions from those facts.

The highly respected Canadian geologist and paleontologist Sir John William Dawson, in *The Bible Confirmed by Science* (1932), insisted that the Bible adheres to the Baconian ideal of sticking to fact and avoiding prior hypotheses.

A remarkable point in Biblical references to nature, is that we find no definite explanation anywhere of natural things. The writers of the Bible do not go beyond the description of what they actually see around them, and the correct way in which they describe what they do see is beyond praise.

The writers of the Bible must have been divinely guided, for unlike all other ancient people, they scrupulously avoided all mythological notions.

George McCready Price, founder of twentieth-century Flood Geology and young-earth “scientific” creationism, repeatedly stressed the need to return to the methods of true Baconian inductive science. He praised Bacon and Newton in *God’s Two Books* (1911), subtitled “Plain Facts About Evolution, Geology, and the Bible.” He actually dedicated his next book, *The Fundamentals of Geology* (1913), to “Lord Francis Bacon and Sir Isaac Newton, men who realized most clearly the true objects of NATURAL SCIENCE, the methods by which it should be pursued...” and continued to trumpet the praises Bacon and Newton in many successive works.

“Modern science,” says Harold W. Clark in *Genes and Genesis* (1940), began “in a truly inductive manner.” Newton made his great discoveries by building upon the facts accumulated by his predecessors. “The particular value of the discoveries of these great men lay in the fact that they were singularly free from speculative hypotheses” (1940:112). Had Newton’s successors followed his example of pursuing science “without a hypothesis,” current scientific study might today be far more advanced than what it is. Instead, laments Clark, those who followed Newton embarked on a fruitless quest for a purely materialistic science. Evolutionary theory became so interwoven with observation and mathematical calculation that science turned into a “confused mass of fact and hypothesis.”

The century following the death of Newton is marked by the entrance of speculative methods of science study... In every field of science objective studies were mingled with speculative and philosophical interpretation. Men turned away from the Biblical account of creation and the Flood... (1940:112, 113)

In *Genesis versus Evolution* (1961:59), Dudley Whitney, an agricultural scientist and editor, says this: “Reason positively demands a decision in favor of divine creation, which is only another way of saying that common-sense science positively proves the fact of God.”

Thomas Barnes, a physics professor and former Dean of Graduate Study and Research at the Institute for Creation Research, has written a creation-science textbook, *Physics of the Future: A Classical Unification of Physics* (1983). In it he asserts that “Our business, as Newton said, is with the sensible causes of the phenomena.” Harold Slusher, who wrote the Foreword to Whitney’s book, also wrote a Foreword to a more recent book by Barnes, *Space Medium: The Key to Unified Physics* (1986). Slusher, like Barnes, was on the faculty at the University of Texas at El Paso, and was also a professor at ICR. Slusher compares Barnes’s work favorably to Newton’s *Principia*.

Randall Hedtke, in his 1983 book *The Secret of the Sixth Edition* (about Darwin's *Origin*), argues that Darwin followed an obsolete pre-Baconian, pre-Cartesian scientific method, "overloading" facts in order to fit pre-conceived philosophies, and shunning experiment. Darwin was thus not a true scientist, but rather a biased propagandist.

It all comes down to this: Evolutionary theory, allegedly one of the greatest scientific theories of all times, the foundation for many philosophies, religions, and political systems, is merely a metaphor "proved" by an analogy, an abomination of science. Those who believe it have been over-influenced by the clever persuasion tactics of a natural philosopher.

Even psychic and occultic evolutionists embrace this Baconian philosophy of science. Max Heindel, in *The Rosicrucian Cosmo-Conception, or Mystic Christianity* (1973; orig. 1909), flatly asserts that "Science merely states the facts; the occult scientist gives the reason." The correct—occult—interpretation of the facts is that we evolve to higher consciousness in each successive cosmic Epoch, but that within each Epoch organic forms degenerate. Non-occultic evolutionary theory has it backwards: "modern evolutionary theory—would, if it were completely reversed, be in almost perfect accord with the knowledge of occult science."

FACT VERSUS THEORY

The stated abhorrence of speculative theories and philosophies, and the insistence on straightforward, uninterpreted facts, is illustrated in the title of an 1855 book by David N. Lord: *Geognosy; or the Facts and Principles of Geology Against Theories*. The biblical account of creation is factual; modern geological theories are not: "The Geological Theory Contradicts the Sacred History of the Creation," says Lord. Lord denounces doctrines "openly hostile to revelation" featured in popular education, which are "masked under the form of facts or truths of natural science..."

W.R. Gordon rails against liberal and atheistic theologians and geologists in *The Science of Revealed Truth Impregnable as Shown by the Argumentative Failures of Infidelity and Theoretical Geology* (1878), a book based on his lectures at the Theological Seminary of Rutgers College (N.J.). He denounces "theoretical" geology—such as that espoused by Darwinists—as opposed to true geology, which is based on a solid fact.

Sir John William Dawson, who claims the Bible avoids all theorizing, emphasizes the difference between *Facts and Fancies in Modern Science* in his 1882 book of that title. In *Nature and the Bible* (1875), Dawson wrote:

Perhaps there can be no surer test of a true revelation from God than to ask the question, Does it refuse to commit itself to scientific or philosophical hypotheses, and does it grasp firmly those problems most important to man as a spiritual being and insoluble by his unassisted reason? This non-committal attitude as to the method of nature and the secondary causes of phenomena is, as we shall see, eminently characteristic of the Bible. [Quoted in Ramm 1954:47]

William Bell Dawson, Sir John's son, agrees that the Bible is factually—scientifically—accurate. It is for this reason—not in spite of it—that the Bible avoids all theory. In *The Bible Confirmed by Science* he says:

A remarkable point in Biblical references to nature, is that we find no definite explanation anywhere of natural things. The writers of the Bible do not go beyond the description of what they actually see around them, and the correct way in which they describe what they do see is beyond praise. [1932]

Facts are just facts; they are not theory-laden.

In *Many Infallible Proofs: The Evidences of Christianity* (1886), Arthur Pierson declared that science should be unbiased, and not based on preconceived theories which hinder impartial investigation. He earnestly warned against relying on appeals to feelings—to conviction rather than to logical persuasion. Advocating a Common Sense approach to science and truth, Pierson insisted that rational investigation and logic would triumph, and prove biblical Christianity true: the “one and only Divine Religion.”

God—asks of us no blind faith. We should know what we believe and why we believe it. Nothing is to be accepted unless based on good evidence; to believe hastily may be to blindly embrace error and untruth. Equally certain it is, inasmuch as God gives the Bible for the guidance of all men, that the proofs that this is his Word will neither be hard to find nor hard to see; they will be plain,—to be found and understood by the common average man. [1886:11]

Marsden (1984:107) quotes a passage from another work by Pierson in which he defends the Baconian Common Sense approach to science and theology:

I like Biblical theology that does not start with the superficial Aristotelian method of reason, that does not begin with an hypothesis, and then wrap the facts and the philosophy to fit the crook of our dogma, but a Baconian system, which first gathers the teachings of the word of God, and, then seeks to deduce some general law upon which the facts can be arranged.

All facts must be based on direct evidence, said Curtis. Mauro asserted (1922) that evolution is “not scientific, for science has to do only with facts. Evolution belongs wholly in the realm of speculative philosophy.” According to Maynard Shipley in *The War on Modern Science* (1927:249), a fundamentalist antievolutionist organization was formed in Los Angeles called the “Defenders of Science versus Speculation.”

Arnold Guyot, an eminent Swiss-born geology and geography professor at the College of New Jersey (Princeton) who introduced the study of scientific geography to this country (“guyots”—flat-topped volcanic seamounts—are named after him), wrote, in *Creation; or The Biblical Cosmology in the Light of Modern Science* (1884):

The Bible narrative, by its simplicity, is chaste, positive, historical character, is in perfect contrast with the fanciful, allegorical, intricate cosmologies of all heathen religions. By its sublime grandeur, by its symmetrical plan, by the profoundly philosophical disposition of its parts, and, perhaps, quite so much by its wonderful caution in the statement of facts, which leaves room for all scientific discoveries, it betrays the supreme guidance which directed the pen of the writer, and kept it throughout within the limits of truth.

In a book called *Plain Facts in Plain Words* (1881; later editions are titled *Moses and the Philosophers*), Stephen Alexander Hodgman said that “Moses wrote the true and philosophical account of the origin of things,” and that the facts of science now confirm the truth of Moses’s account. The absurd fictions of false science will disappear, despite the current prevalence of the teachings of Darwin, Huxley and Spencer (quoted in Cavanaugh 1983:153).

George McCready Price continued to insist on the difference between facts and theories in his many books, such as his textbook magnum opus *The New Geology* (1923).

Price wrote that he always tried “to keep facts and theories clear and distinct.” Geologists have yet to learn to do this, says Price.

Most of the other natural sciences have each passed through about the same stages of historical development. Beginning as mere speculations, each passed through a period where speculative or a priori methods struggled with the rising scientific or inductive methods. Finally these other sciences have now reached the place where scientific methods alone are recognized by the educated world, and speculative fancies are debarred from exercising their baleful influence over the main conceptions of these sciences. At any rate, in all the sciences except geology, facts and theories are kept separate and distinct in all textbooks to be used by students in academies and colleges, so that the student can judge of the value of the theories for himself. In this way, the student has a chance for his intellectual life, his intellectual freedom. But in geology, facts and theories are still inextricably commingled; and in the ordinary college textbook of the science, the most absurd and fantastic speculations are still taught to the student with all the solemnity and pompous importance which might be allowable in speaking of the facts of chemistry or physics. (1923:587]

Proper science should be built inductively on facts—not on a priori theories such as evolutionism. Such a true science proves Flood Geology, as he wrote a few years later in *Evolutionary Geology and the New Catastrophism*:

By these methods of strict inductive science, we shall not be able to avoid the conclusion that our world has witnessed an awful aqueous catastrophe, and that back of this lies a direct and real creation as the only possible origin of the great families of plants and animals. In short, a strictly inductive and mature study of the facts of geology as known to modern science confirms in a very marvelous way the literal interpretation of the first chapters of Genesis which a pseudo-criticism and the infant lisping of science supposed they had consigned to the realm of fable and myth. [1926:223]

Price pointed to the many examples of “wrong-order” strata and fossils as decisive refutation of the evolutionist theory of a long and gradual deposition of the various layers. “Every scrap of physical evidence tends to show that these rocks were actually deposited in the order in which we find them.” It is only blind adherence to evolutionary theory which causes geologists to ignore these plain facts. Reliance on such a speculative hypothesis, declared Price, is a “mere travesty on the methods of Bacon and Newton” (1926:323).

In a later book, *The Geological-Ages Hoax: A Plea for Logic in Theoretical Geology* (1931), Price castigated geologists for backwards reasoning. He insisted that proper logic demands that geological investigations “begin at the surface of the earth and work downward, instead of beginning at a supposed bottom of the fossiliferous strata and working upward.” Geologists begin at the bottom and speculate recklessly up to the present. “The correct scientific method would be to begin with the present world, with all that we know about our modern earth and its living inhabitants and the forces now operating over the earth’s surface; then by working backwards into the past” we can explain that past. Previous geologists were “wild dreamers and speculators; for the relics of ancient plants and animals were used by them as mental spring-boards from which to launch away on the wings of airy fancy about how the world was made and what innumerable vicissitudes it had experienced in remote ages.” Price calls for an “ecdysis” of geology: for geology to shed its old rigid shell of accumulated false facts and obsolete theories.

Harry Rimmer titled his first major work *The Theory of Evolution and the Facts of Science* (1935). In *The Harmony of Science and Scripture* (1936:12), he says:

If the words of the Great Book are not in full accord with all known fact, then we have been mistaken in calling it the Word of God. We use the word 'fact' in its accepted meaning, as distinct from theory and unproved hypotheses. our main objection to the pseudoscientific philosophy of this present generation is that it manifests an amazing willingness to surrender the eternal verity of God's revelation for the unfounded theories propounded by men who are utterly without ability to prove their wild imaginings. And science, we must repeat, is a correlated body of absolute knowledge.

In *Modern Science and the Genesis Record*, written the following year, Rimmer declared that:

even if we view the first chapter of Genesis as a theory only, it is at least a reasonable theory and may be scientifically adopted as a working hypothesis. On the other hand, the alternate theory, that of evolution, is utterly discredited scientifically. We do not advance the first chapter of Genesis as a theory, however, but boldly contend that it is a scientific record of absolute facts. [1937:249]

Here we see an anticipation of the current "creation-science" "two-model" argument: that "evolution-science" and "creation-science" are both scientific theories or "models" of equal validity (though of course creationism is true).

James Lee Martin stated that the purpose of his 1938 book *Monkey Mileage from Amoeba to Man* was to lead open-minded searchers of the

origin of matter and Man into those channels of Thought and Reason that lead on beyond where Science ends to where Faith in a Creator of All Things begins. Our research to that end may be scientific, but Science itself can deal only with facts reduced to immutable law.

The fact that Darwinian theory has been modified is for Martin "conclusive proof that Darwin was theorizing rather than dealing with established facts; because a fact once established as such remains unimpeachably a truth" (1938:46).

Therefore, Stand (1946) by Wilbur N. Smith, subtitled "A Plea for a Vigorous Apologetic in the Present Crisis of Evangelical Christianity," includes the assertion that "the facts of history, and the facts of science, are not on the side of agnosticism and atheism, but on the side of Christian truth, and that our faith is definitely not contradicted by facts, but is opposed only by the theories of men..."

In *Evolution and the Bible* (undated but written in the 1920s), A.I. Brown explains:

The mistake of many writers and speakers is that they confuse evolution with science. Evolution has no claim whatever to be called science, because it is nothing more than a philosophy. A certain school of scientists have by vociferous and dogmatic utterances, endeavored to confer upon it the dignity of proven facts, so that the idea has become more or less fixed in many minds, notwithstanding the almost total absence of corroborative evidence. [nd:2]

Scientific Creationism, written by the Institute for Creation Research under the direction of Henry Morris, and widely considered the most authoritative presentation of modern creation-science, states that "There is not the slightest possibility that the facts of science can contradict the Bible" (1974:15). Morris is trying to explain here that even though the "scientific creationism" he presents contains no biblical references, this does not mean that it is considered more reliable than "biblical creationism." "To the contrary, it is precisely because Biblical revelation is absolutely authoritative and perspicuous that the scientific facts, rightly interpreted, will give the same testimony as that of Scripture."

Morris, like most creation-scientists, defines ‘science’ simply as classified and demonstrated “knowledge” (from its etymological derivation: ‘*scientia*’). In an earlier paper, Morris wrote:

Science thus involves facts which are observed and laws which have been demonstrated. The scientific method involves experimental reproducibility, with the like causes producing like effects. It is knowledge, not inference or speculation or extrapolation. (1968:12)

Harold Slusher, a physicist and formerly a professor and Dean at the Institute for Creation Research, complains often that modern (non-creationist) physicists have abandoned the real world in order to indulge in evolutionist speculations and abstractions.

Truly we have suffered too long and disastrously under serfdom to barren and naturalistic nature-myths regarding the cosmology and the cosmogony of this actual universe. The evolutionist live in a dream world in which any resemblance to the real world is lacking. [1980:72]

In a work co-authored with one of his Univ. Texas (El Paso) and ICR graduate students (whose Masters thesis was on the same subject), Slusher reinterprets the motion of Mercury’s perihelion, rejecting the relativistic Einsteinian interpretation. Slusher feels that modern physics is far too abstract, and ought to limit itself to real objects and direct observation, rather than indulging in speculative hypotheses.

Modern cosmology based on relativity seems nothing but a fantasy of mathematicians who find it agreeable that the world should be made in this way. We should abandon Aristotle’s approach to study of the cosmos, forsaking mathematical artifice, and develop a cosmology based on observations. [Slusher and Ramirez 1984:81]

Another ICR book, aimed at public school children, is called, revealingly enough, *Fossils: Hard Facts from the Earth* (Fox 1981).

BIBLE-SCIENCE

From the evidentialist apologetics of Princeton theology, with its claim to reasoning one’s way to faith from the facts contained in the Bible and in nature, and the related doctrine of biblical inerrancy, with its stress on the absolute unchanging factuality of the printed Word, grew the theory and practice of “Bible-science”: the notion that modern science (rapidly becoming the new source of authority, rivaling and threatening to surpass that of religion) is contained within the Bible—that various Bible passages anticipate and predict discoveries and inventions of modern science, thus affirming that the Bible is of supernatural and omniscient origin, and that it is wholly accurate scientifically as well as religiously. “Creation science” is an outgrowth of this Bible-science approach (though fundamentalist opposition to evolution can be, and is, manifested in many other ways as well). So too are other, often conflicting, claims. Exactly the same type of Bible-science argument and logic has been used to support geocentrism, flat-earthism, claims both for and against the “Big Bang” origin of the universe, quantum mechanics, and other scientific theories. Of course, each Bible-science advocate must insist that any conflicting Bible-science claims are the result of both mistaken scientific theories and—more importantly—wrong interpretation of the Bible.

The first major proponent of the modern-science-in-the-Bible approach that I am aware of is Arthur Pierson. In his 1886 book *Many Infallible Proofs*, which promoted the Common Sense approach to science and truth, he presents many examples of modern scientific discoveries and theories which are foretold or explained (though only in retrospect) in the Bible, such as the nature of light, air pressure, insect behavior, the circulation of blood, the biological unity of mankind, and others. Pierson affirms the incredible scientific accuracy of the Bible: “not one scientific error, blunder or absurdity has ever been found there!” He indignantly refutes atheist orator and debater Robert Ingersoll’s *Some Mistakes of Moses*, which attempts to debunk claims of biblical inerrancy.

The Bible, however, does not employ scientific language; it “is not, and cannot be, a scientific book.” Rather, “The object of the Bible is not to teach science, but moral and spiritual truth” (1886:113). Though the Bible does not use scientific language, Pierson explains why the “language of appearances” it does employ, though deferring to religious over any scientific teaching, nonetheless does not violate any scientific truth or fact:

We are therefore to judge the Word of God by its professed purpose, and if, in the unfolding of moral and religious truth, scientific errors or inaccuracies appear, which have no relation to spiritual truth, they may not make the Bible unworthy of acceptance as a guide to the knowledge and practice of duty. Lord Bacon, from a strictly philosophical point of view, has said that the “scope or purpose of the Spirit of God is not to express matters of nature in Scripture, otherwise than in passage, for application to man’s capacity and to matter moral and divine.” It was no part of the design or mission of inspired writers to tell us scientific truth. Hence it was natural that, in referring to the Kingdom of Nature, they should use the language of appearance, as we do now at an age of the world far more advanced in scientific knowledge. We know that the sun is the centre of the solar system, and that the earth moves around it; yet we talk of the sun as rising in the east, setting in the west, and revolving about the earth. We speak of the dew as descending from heaven, as though distilled in the far depths of space, while in fact the atmosphere gives up its vapor at the touch of a colder surface, as an ice pitcher collects and condenses the moisture from the air. When, therefore, sacred writers use forms of speech which fit appearances, not realities, and accord with popular impressions, rather than scientific discoveries, “the absence of scientific accuracy by no means involves any real discrepancy or contradiction.”

Had the language of Scripture been scientific, instead of popular, it would have been a blemish and a hindrance, because it would have arrested attention and diverted it from the grander truths that the Bible was meant to unfold, and created controversies on matters of little consequence. Suppose, for instance, that in the opening chapters of Genesis, Moses had accurately announced, in plain terms, all the discoveries of modern geology and astronomy; had given this globe a great age, even prior to the creation of man; had made the six days of creation six periods of vast length;² had described the vast vegetation of the carboniferous age, and the marvelous process by which it was converted into coal; had told men of the original chemical or “cosmical” light and heat that preceded the appearance of the sun—of the mighty monsters that sported in the waters and roamed on the land; had recorded the tremendous convulsions that rocked the earth as on the bosom of a vast crater—what would have been the effect?

First, scientific discovery would have been announced prematurely, before mankind was fitted to understand it. ... [And], the effect would be to discredit the whole revelation—to make Moses appear either as a madman or a dreamer, and thus to defeat the grand end for which the Inspired Word was given! And yet, if the Bible is God’s Truth, it ought not, even by the way, to affirm what is actually untrue. We cannot imagine the infinite God as telling man the grandest truths on spiritual themes and surrounding them with many little falsehoods, simply because man was not mature enough to understand the full facts.

² Pierson was not a young-earth creationist, nor was he a Flood Geologist.

Was there any way by which all desirable ends should be met? Only one suggests itself. God might lead inspired men to use such language, that, without revealing scientific facts in advance, it might accurately accommodate itself to them, when discovered... If there be terms or phrases which, without suggesting puzzling enigmas, shall yet contain within themselves ample space for all the demands of growing human knowledge; if the Bible may, from imperfect human language, select terms which may hold hidden truths, till ages to come shall disclose the inner meaning,—this would seem to be the best solution of this difficult problem. And when we come to compare the language of the Bible with modern science, we find just this to be the fact. [1886:114-116]

Pierson goes on to show, using numerous examples, that despite its non-scientific language, the Bible is indeed scientifically inerrant. “Again we say, show us one undoubted fact, revealed by scientific studies for two thousand years, that cannot be harmonized with the word of God!” He devotes considerable attention to the Genesis account of creation, explaining how the six creation days, interpreted as geologic ages, are fully in accord with the latest discoveries of science.

In evaluating the evidences for Christianity, says Pierson, we must prize “perspicuity” of argument and evidence; also, “It is safe to distrust any argument that insults common sense.” “It is always possible, if one has a thought worth anything, to put it in plain words; and why not in good, homely Anglo-Saxon?” (1886:24). After all, this is what God Himself did when he divinely inspired the translators of the Authorized (King James) Bible.

“From the facts it becomes evident that the Christian faith, like science, rests upon clear and positive facts.” So says F. Bettex, who goes on to write that “the Christian religion, like science, is founded on clear, daily-recurring facts, easily recognizable by an impartial observer” (1901:249, 252). Bettex shows that though Darwinism is refuted by geology, the Genesis account is in perfect accord with science.

The Biblical final resolution (not annihilation) of all elements through excessive heat (see St. Peter ii), and the new Creation which will result from it, is a scientific, astronomical, chemical, absolutely correct conception. Spectrum analysis, the science of the elements revealed by fire, is a true image of the last judgment. [1901:186]

Bettex goes on to present scientific explanations of various biblical concepts. “The Bible and nature in nowise contradict each other, though many things in nature contradict what men have put into the Bible” (1901:187).

Gerald Winrod presented many examples of science in the Bible in *Science, Christ and the Bible* (1929). “Science is exact knowledge, gained and verified. True science never asserts; it always proves” (1929:33). Science is proved knowledge gained from the facts of nature—or from the facts contained in the Bible.

When blatant men of science have attacked the Bible, some timid believers have sought to politely excuse themselves by saying that the Bible is not meant to be a scientific book. There is no reason why we should apologize for the Bible. It is in harmony with every true fact of science, but, of course, it would be expecting too much to hope to reconcile the Bible with the theories of all the scientists. (1929:47-48]

We cannot read the books which Moses wrote, without being impressed with the fact that he was one of the greatest scientists that ever lived. Score of instances can be pointed to in the writings of Moses wherein he gave voice to some of the most gigantic scientific truths, which modern science knows anything about. [1929:84]

If you possess a scientific turn of mind, I suggest that you go through the book of Job,³ looking only for scientific statements. You will be amazed at the wealth of scientific material that you will find. [1929:101]

Winrod devoted a chapter to explaining how Lot's wife became encrusted with salt (turning into the biblical "pillar of salt") due to a Dead Sea volcanic eruption.

Harry Rimmer devoted an entire book (*Lot's Wife and the Science of Physics*, 1947) to this, and similar, Bible-science questions. (He also explained it as petrification from volcanic emissions.) In *The Harmony of Science and Scripture* (1936), Rimmer argued aggressively for the scientific inerrancy of the Bible and the superiority of Bible-science, brandishing many scientific arguments. The Bible, although it does not use scientific language, contains no scientific error whatsoever, and in scores of cases it has "anticipated the discoveries of modern science." Rimmer in fact includes a whole chapter "Modern Science in an Ancient Book," as well as chapters such as "Modern Science, Jonah, and the Whale" (Rimmer avers that the sea monster which swallowed Jonah was supernatural, but relates cases from modern times in which huge fish have swallowed humans), "Modern Science and the Deluge" (Rimmer is a Gap Theory believer, but he also insists on the literal truth of the worldwide Flood, citing Woolley's excavations as proof), and a chapter on the "Long Day of Joshua."

Creation's Amazing Architect (1955), by Walter Beasley, the first volume in the "Modern Science and the Bible Series," professes to show "How the Modern Science of Geology was Anticipated by Nearly 3,500 Years." Like Pierson, Beasley applies a Day-Age creationist interpretation to Genesis.

The field of genetics has attracted much Bible-science attention. "The modern law of heredity," wrote Winrod (1929:49), "was revealed to a human scribe when God said that the sins of the parents are visited upon the children until the third and fourth generations, and again, where it is written that the parents had eaten sour grapes and the children's teeth are set on edge." The same law, he continued, explained how Jacob got plain goats to conceive spotted and speckled offspring.

William Tinkle, who has a zoology Ph.D. from Ohio State University, and was a founding member of the Creation Research Society, wrote a textbook *Heredity: A Study in Science and the Bible* (1970). It is largely a straightforward presentation of Mendelian genetics, but Tinkle denies that genetics is a vehicle for evolution.⁴ Tinkle concedes that life has undergone certain changes (the development of parasites being a notable

³ Bible-Science Association founder Walter Lang has been lecturing on writing on science in the Book of Job for decades; see also Henry Morris's *The Remarkable Record of Job* (1988).

⁴ Creationists have used the perceived conflict between Darwinian evolution and Mendelian inheritance—a feature of much scientific (evolutionist) as well as fundamentalist opposition to Darwinism in the first decades of this century prior to the neo-Darwinian synthesis—as an example of the contrast between "facts" (the scientifically proven laws of Mendel, which show that each organism reproduces "after its own kind") and mere "theories" (the unproven theory that one type of organism can produce a different type). "The rediscovery of Mendel's Law of Heredity was a crushing blow to the arguments for evolution," says A.I. Brown (n.d.:43) in *Evolution and the Bible*; this claim was and is widely repeated by creationists. Darwin was a scientific pretender; Mendel was the true genius, declares George O'Toole (1925), a professor of both biology and theology. Mendelian genetics, according to O'Toole (and also many noncreationist scientists in the first quarter of the century), forbids natural selection, which he sees as the only original aspect of Darwin's theory—the only difference between it and Lamarck's. Hence Lamarckism and Darwinian transformism prove each other wrong: "no modern biologist attaches very much importance to natural selection," and variations are now known not to be hereditary.

example), but these changes are all the result of mere variation and degeneration within the original types caused by mutations.

Genetics itself does not teach Christianity nor any other form of religion but it allows plenty of room for Christianity and does not clamor for change. It does not supply facts to indicate a natural upward evolution of the race but indicates a horizontal tendency for the most part with loss when mutation occurs. This type of change is the vain hope of those who would see man emerging as the culmination of natural change. [1970:175]

John Klotz, who has a biology Ph.D. from the University of Pittsburgh, and was also a founding member of CRS, presents a similar treatment in *Genes, Genesis, and Evolution* (1970; originally 1955).

Mutations have occurred in the past and still occur at a fixed, measurable rate. But all of this change, insofar as the organic world is concerned, has taken place within limits fixed by the Creator when He fashioned the different “kinds” in the beginning. [1970:vi]

Many other creationists besides Winrod have explained the story of Jacob and Laban’s goats in Genesis, which is often cited by opponents as an example of the unscientific nature of the Bible, by means of a Bible-science approach. Tinkle (1970:153-154) interprets the real cause of the appearance of spotted and striped offspring as due to recessive genes (though Jacob obviously thought it was due to the external visual influence of striped rods to which Jacob exposed the mother goats). According to Frank Marsh (1944:81), John Van Haitzma (an organic science professor at Calvin College and a founder of the evangelical American Scientific Affiliation) also explained the story in terms of recessive genes in *The Supplanter Undeceived* (1941).

In *The Genesis Record*, Henry Morris of the Institute for Creation Research says that Jacob “had apparently learned something of what we now call Mendelian genetics,” and realized that the spotted and speckled traits were recessive. Morris rejects the apparent meaning of the story: that Jacob, believing in prenatal influences, supposed that the striped rods could cause the birth of similarly marked goats by a kind of sympathetic magic.

It may be that Jacob had learned certain things about these animals which modern biologists have not yet even approached.

There are, indeed, certain factors which can become prenatal influences, and which can determine to some degree the physical characteristics of the progeny. Though it is surely very unlikely that an external image can be transmitted through the visual apparatus to the brain and thence in some way as a signal to the DNA structure to specify certain characteristics to be triggered in the embryo, it is nevertheless true that certain chemicals can and do have a significant prenatal influence if they can reach the embryo or, prior to conception, the DNA in the germ cells. It is possible that certain chemicals in the wood of these trees—peeled rods of which were actually in the water which the flocks came to drink—were capable of affecting the animals. [1976:475-476]

In any case, continues Morris, the rods probably had an aphrodisiac effect (whether chemical or visual), inducing the goats to produce more offspring, which benefitted both Laban and Jacob, who got to keep the recessive phenotypes. Morris adds, however, that God, to benefit Jacob, supernaturally increased the proportion of these recessive phenotypes.

A.E. Wilder-Smith, the creationist with three earned doctorates, has a chapter on the “cloning” of Eve from Adam in the Garden of Eden in his book *The Reliability of the Bible*. “The entire report reads exactly like a historical description of surgery under normal physiological conditions for surgery,” he says (1983:55) regarding the Genesis account. Wilder-Smith emphatically rejects any suggestion that this story be interpreted symbolically or mythically, and insists it is a factual description of an actual operation. God, after removing a cell from Adam’s rib, deleted the Y chromosome and doubled the remaining X chromosome to produce a female. Thus Wilder-Smith retains a literal interpretation of biblical Creation and also affirms the scientific accuracy of the Bible.

A somewhat earlier theory was advanced by P.G. Fothergill in his book *Evolution and Christians* (1961). He suggested that Adam was “the product of pre-hominid parents acting as instrumental causes.” Adam married one of the proto-human creatures; their offspring would have been “the product of a fully-formed human male gamete and a near-human female egg.” Since each gamete contains the full complement of genes, Adam’s offspring could have been fully human if they got their genes from his gamete, and thus they could have received a soul as well. Adam could then have married one of these (his own) children—Eve. Eve was in this way created “out of Adam.”

Arthur Custance, the Canadian author of the “Doorway Papers” series, has a doctorate in medical physiology (though it is usually listed in the creationist literature as an “anthropology” Ph.D.). *The Flood: Local or Global?* (1979), one of his several Doorway Papers volumes, contains a chapter on “The Meaning of Sweat as Part of the Curse.” Custance, who has done research on combat heat stress and related topics, here analyzes the physiological significance of biblical references to sweat, concluding that Adam originally sweated only minimally for heat regulation. Sweating from fear or emotional stress did not exist until the Fall.

PROPOSITIONAL NATURE OF THE BIBLE

In *Genesis in Space and Time* (1972), Francis Schaeffer, a leading fundamentalist theologian and philosopher, proclaims the historicity of Genesis. The Bible consists of “propositional truths” rooted in actual history.

What the Bible tells us is propositional, factual and true truth, but what is given is in relation to men. It is a scientific textbook in the sense that where it touches the cosmos it is true, propositionally true. When we go to heaven, what we learn further will no more contradict the facts the Bible now gives us than the New Testament contradicts the Old. The Bible is not a scientific textbook if by that one means that its purpose is to give us exhaustive truth or that scientific fact is its central theme and purpose. [1972:35-36]

The truth of the New Testament is dependent on this historicity and facticity of Genesis.

What is the hermeneutical principle involved here? Surely the Bible itself gives it: The early chapters of Genesis are to be viewed completely as history—just as much so, let us say, as records concerning Abraham, David, Solomon or Jesus Christ.

The opening verse of Genesis, “In the beginning God created the heavens and the earth,” and the remainder of chapter 1 brings us immediately into a world of space and time. Space and time are the warp and woof. Their interwoven relationship is history. [1972:15]

The historic Christian position concerning Genesis 1:1 is the only one which can be substantiated, the only one which is fair and adequate to the whole thrust of Scripture. “In the beginning” is a technical term

stating the fact that at this particular point of *sequence* there is a creation *ex nihilo*—a creation out of nothing. [1972:24]

Conrad Hyers, a theologian, criticizes Schaeffer's insistence on interpreting Genesis in terms of scientific propositions in *The Meaning of Creation: Genesis and Modern Science*. Hyers notes that Bacon dealt with the apparent geocentric and flat-earth views of the Bible by arguing that the "book of God's Words" should not be confused with the "book of God's Works." Confusing the two, said Bacon, will result "not only in a fantastic philosophy but an heretical religion" (Hyers 1984:32-33).

C.I. Scofield, in his *Reference Bible* and in *Rightly Dividing the Word of Truth* (1961 [originally ca 1920]), popularized the dispensational view that all history was divided into seven distinct Dispensations. Scofield, in emphasizing that different parts of the Bible refer to different Dispensations, insisted that correct interpretation involved proper classification of biblical data, that is, in "rightly dividing the word of truth" (a biblical phrase) to determine which category of Scripture each passage belongs to: which dispensation it referred to, whether it referred to God's Law or Grace, etc. Data from the Bible are classified and correlated just as science classifies and correlates facts observed in nature. These biblical data are scientific and historical propositional statements. Dispensationalists seek as literal a meaning as possible in the interpretation of all biblical propositions and facts. Likewise, Bible prophecy consists of propositional, historical statements concerning the future, which are also considered to be literally true, classifiable, and computable.

For the dispensationalist fundamentalist, then, the Bible is among other things a prophetic puzzle. Moreover, they consider the exactitude of Biblical statements to be crucial to properly piecing together the scheme of history revealed. It is important, for instance, that the events bringing the end of our era last exactly seven years and that the millennial reign of Christ on earth be exactly 1,000 years. The inerrancy of Scripture in all its statements is accordingly an absolutely essential dogma relating to the entire dispensationalist fundamentalist world view. Moreover, this version of inerrancy carries with it a principle of interpretation. Not only does the Bible not err in any of its assertions, but its assertions are to be interpreted as literal and precise statements of historical fact whenever that is possible. [Marsden 1984:106]

Pre-millennial doctrines, which became an important feature of twentieth-century fundamentalism (Sandein 1970 emphasizes the millenarian contribution), contributed significantly to the development of the Bible-science approach and strict creationism.

The Bible, such millenarians assume, is susceptible to exact scientific analysis, on the basis of which at least some aspects of the future can be predicted exactly. Seventh-Day Adventists, Jehovah's Witnesses, and the influential dispensational premillennialists among fundamentalists, all treat the prophetic numbers in this way. For such groups it is important to have a biblical hermeneutic that will yield exact conclusions. Moreover, the hermeneutical principles that apply to prophecy should be consistent with those applied to scriptural reports of past events. Dispensationalists have often used the formula 'literal where possible' to describe this hermeneutic. [Marsden 1983:571]

Henry Morris treats each passage in Revelation as an inerrant, "literal if at all possible" propositional fact in his *Revelation Record*, just as he interprets each passage in Genesis. For instance, regarding a passage describing the dimensions of the New Jerusalem—the City of God which descended out of Heaven to earth after the Millennium—Morris industriously translates and calculates the stated biblical

measurements in order to provide scientifically accurate dimensions for this literal city. He then calculates the average cubic living space for each inhabitant (the physically resurrected bodies of the saved) by estimating total world population since Creation, plus people born during the Millennium, divided by five (from his estimation that 20% of all living souls will have been saved), arriving at a total population of 20 billion for the New Jerusalem. This works out to about one-thirtieth of a cubic mile per resurrected body—quite spacious, actually (1983:450-451).

In 1902 Jabez Dimbleby, a founder of several British chronological and astronomical associations, wrote a book called *The Date of Creation: Its Immovable and Scientific Character*, in which he used eclipse cycles, planetary orbits, lunar and solar cycles, other astronomical data, and Hebrew and Chaldean calendars. He calculated that all these various cycles began together at 3996 B.C., which is thus the date of Creation. (He seems to have supposed that the geological ages, though, preceded this Creation.) Dimbleby reasons that scientific and calendrical data (including biblical data) can be analyzed to yield the exact date of Creation, which is a “factual” event attested to in Genesis.

This tradition is carried on by Eugene Faulstich, an electrical engineer and former president of the Bible-Science Association. Faulstich founded the Chronology-History Research Institute in Iowa, which is intended as a graduate level school devoted to Bible apologetics, specializing in study of Bible chronology and dating. Using computer analysis, Faulstich shows that Bible chronology, without assuming any gaps in the Genesis genealogies, is completely accurate. Creation can be conclusively dated to Sunday, March 17th, 4001 B.C. The thesis of one of his reports is that “Old Testament Hebrew Scripture can scientifically be proven to be historically accurate since Creation, and that Jesus was predestined in that history as the Messiah and Saviour of the world” (n.d.). Number patterns discovered by Faulstich’s analyses prove the supernatural origin and plan of history chronicled and foretold in the Bible, and confirms the recent creation of the universe (*Absolute Chronology of the Universe*, n.d.; *Moses the Astronomer and Historian par Excellence*, 1983; *History, Harmony and the Hebrew Kings*, 1986; and his periodical *It’s About Time*). Time-spans between significant biblical events occur as unusual and patterned sums of days, with a numerologically significant preponderance of 7s and 3s. From study of the Hebrew lunar and solar calendar systems, Faulstich found that all the calendrical cycles (weekly cycles, months, Priestly cycles, Sabbath and Jubilee years) were aligned only once every 2395 years. One of these alignments was 4001 B.C.: the date of Creation. Faulstich also discovered an equally significant astronomical alignment of the earth, moon, Venus, Mars and Mercury which also occurred at 4001 B.C., for which he claims confirmation from the Harvard Center for Astrophysics (and specifically Owen Gingerich).⁵

In *Science Speaks: Scientific Proof of the Accuracy of Prophecy and the Bible* (1958), Peter Stoner demonstrates how modern scientific discoveries are just now catching up with—and confirming—the Bible. Much of the book is a presentation of the probability argument—now a favorite with fundamentalists—concerning a list of Bible prophecies. Stoner assigns a probability of each prophecy coming true; the probability of

⁵ For a critical evaluation of Faulstich’s chronological computations and analysis and the significance of the astronomical conjunctions, see W. Jefferys 1987.

all coming to pass, calculated by multiplying all the individual probabilities together, is infinitesimally small—yet, he claims, they have.

According to *The Gospel in Creation* (1894) by E.J. Waggoner, a Seventh-day Adventist, themes of the story of Christ are foretold in the Genesis creation account. Waggoner praises Christ as the Creator. “It is not a trivial matter that ‘the latest deductions of science’ have drawn so many professed believers in the Bible to modify their views of the story of creation.” These latest deductions are, however, false, according to Waggoner. He discusses experimental “voice-pictures” which are formed when the human voice agitates powder set on a special plate: these voice-prints are taken to show scientifically how God created by His Word. Organisms possess a life-force breathed into them by God.

Bernard Ramm is a conservative Christian whose book *The Christian View of Science and Scripture* (1954) is a comprehensive and scholarly review of various views regarding the relation of science to the Bible by believing Christians. The book is an excellent source for references on many different approaches. Ramm himself urges a return to the tradition of late nineteenth-century conservative evangelical scholars who diligently and carefully tried to harmonize science and Scripture (he praises J.W. Dawson, Pye Smith, Hugh Miller, Asa Gray, James Dana, Rendle-Short, Fleming, Bettex, and others). As James Barr points out, however (1981:94), Ramm assumes the factual scientific nature of the biblical account, and is unable to consider the possibility that the Genesis account may be legend or myth, and hence not amenable to scientific explanation or ‘harmonization.’ Ramm, like other Bible-scientists (though he rejects Flood Geology and young-earth creationism), feels obliged to interpret the Creation and the Flood as actual historical (and scientific) events. The task then becomes how to find a ‘harmonization’ that does not appear to do too much violence with accepted scientific evidence.

LITERALISM VERSUS INERRANCY

In understanding fundamentalism, Bible-science, and creationism, it is important to distinguish the doctrine of biblical literalism from biblical inerrancy. They are not synonymous. Since creationism is so obviously based on a literalist interpretation of Genesis, it is easy to assume that literalism is the overriding concern. Such is not the case. In fact inerrancy is the dominant principle in fundamentalist Bible interpretation. Fundamentalists interpret biblical passages literally if at all possible, but are absolutely committed to believing that each and every passage is wholly inerrant.

What fundamentalists insist is not that the Bible must be taken literally but that it must be so interpreted as to avoid any admission that it contains any kind of error. In order to avoid imputing error to the Bible, fundamentalists twist and turn back and forward between literal and non-literal interpretation. [Barr⁶ 1981:40]

⁶ Somewhat ironically, Barr uses as an example the Creation account of Genesis, which Barr says most fundamentalists do not take literally! (Barr is writing from England, in a book first published in 1977.) Barr goes on to note the prevalence of Day-Age interpretations—non-literalist interpretation of the six ‘days’ of creation as long ages—rather than a literal six-day creation (though of course Day-Age creationism can be just as strongly antievolutionist

Does it not seem wholly inconsistent that one can be literal at one point and non-literal at another? Not at all. As seen from the fundamentalist's point of view, there is nothing wrong in this. On the one hand, he ties himself not to the 'literal' meaning, which would be methodologically controllable, but rather to the 'plain' meaning, the meaning which is clearly the right one. But since the principle of inerrancy is the overriding one in all interpretation, no meanings turn out to be 'plain' if they disagree with the inerrancy of the Bible. The 'plain' meaning is the one selected, from among those which might be in conformity with the inerrancy of the Bible, by various exegetical considerations. [Barr 1981:52]

At one creationist conference I attended, "Bible Bookmarks" were distributed which spelled out the "Special Rules of Interpretation" in order to define more precisely this 'literal where possible' principle. Namely, assume literal meaning except when context, other Bible passages, or "common sense" rules this out (Kilgore 1986). The masthead of creationist Howard Estep's *Prophetic News Letter* states the same principle thus: "Rule of Interpretation: Take the Bible literally where it is at all possible; if symbolic, figurative, or typical language is used, then look for the literal truth it intends to convey."

According to the "Chicago Statement" in *Biblical Hermeneutics and Inerrancy of the International Council on Biblical Inerrancy* (1983:46), "the meaning expressed in each biblical text is single, definite and fixed." The fundamentalist view of the Bible as consisting of hard, absolute facts with fixed, definite meanings increases the tendency to opt for as literal an interpretation as possible. "This view of the scriptures as a series of scientifically accurate propositions has invited the literalist interpretation that allows biblical language as few ambiguities as possible" (Marsden 1983:572).

All fundamentalists readily admit that some Bible passages should be interpreted symbolically (figuratively or poetically) rather than literally. There is, however, considerable disagreement on which passages these include. An example of particular relevance to Bible-science are passages which reflect a geocentric view of the sun. Most modern Bible-scientists feel no urge to try to interpret these literally, and say that the Bible is here using "phenomenological" language—description of how things appear rather than what we know to be true. Most creationists would be embarrassed by the insistence that these passages also be interpreted literally. Yet some modern creationists (see later) do indeed insist that these passages must be interpreted literally, as they bear no signs of symbolic or figurative intent, but are stated as "plain" statements of literal fact. These same Bible-scientists, who insist on geocentrism in addition to young-earth creationism, however, will readily admit that other Bible passages are intended to be interpreted symbolically or figuratively.

Belief in biblical inerrancy is the defining characteristic of fundamentalists. It was officially enshrined as the first of the "Five Points" of fundamentalism in the declaration adopted by the Presbyterian General Assembly in 1910 which defined the core, absolutely essential doctrines of faith. (The other points were Christ's virgin birth, substitutionary atonement, and bodily resurrection, and the authenticity of supernatural miracles. Inerrancy of course subsumes these other points, and thus it can be argued that inerrancy is the general principle from which the other points necessarily follow. Subsequent fundamentalist five-point creedal statements by other organizations substituted Christ's imminent pre-millennial return for the fifth point, but inerrancy remained the first, overriding principle.)

The "Statements of Belief" or creedal foundations of various creationist and Bible-science organizations all begin by affirming that the Bible is inerrant. They also of

course insist on a literal interpretation of the Genesis creation account (including the Flood, Adam and Eve, and other aspects of the Genesis account), but they do not interpret every passage in the Bible literally—only “literal where possible.” Inerrancy is the absolute principle; literalism is a matter of interpretation regarding the intent and “plain meaning” of the passage (and, consequently, results in considerable disagreement at times). Many inerrantists, though they emphatically reject evolution as opposed to the plain Word of God in the Bible, do not insist that creation was recent. Passages which imply that the earth, or man, was created recently need not, they maintain, be interpreted literally. The International Council on Biblical Inerrancy, for instance, consists largely of old-earth creationists. Gleason Archer, an ICBI member, writes:

To be sure, if we were to understand Genesis 1 in a completely literal fashion—which some suppose to be the only proper principle of interpretation if the Bible is truly inerrant and completely trustworthy—then there would be no possibility of reconciliation between modern scientific theory and the Genesis account. But a true and proper belief in the inerrancy of Scripture involves neither a literal nor a figurative rule of interpretation. What it does require is a belief in whatever the biblical author (human and divine) actually meant by the words he used.

An absolute literalism would, for example, commit us to the proposition that Christ actually meant to teach that a camel could go through the eye of a needle. But it is abundantly clear that Christ was simply using the familiar rhetorical figure of hyperbole... (1982:58-59]

Proper exegesis, Archer continues, requires careful consideration of the meaning God intended to convey in each section of the Bible. “Is the true purpose of Genesis 1 to teach that all creation began just six twenty-four-hour days before Adam was ‘born’?” No, says Archer, along with many of his fellow inerrantists; its purpose is to affirm divine, special Creation—but not necessarily in six literal days. The inerrantists of the Institute for Creation Research, the Bible-Science Association, the Creation Research Society, and other major creation-science organizations, however, insist that the clear intent of Genesis is that creation was recent.

PERSPICUITY OF THE BIBLE

Another principle in standard fundamentalist exegesis and interpretation is that of “perspicuity” of Scripture. The correct interpretation is the plain meaning of the verses. This is related to the Common Sense tradition, which held that nature was perspicuous: things were what they appeared to be, and could be perceived directly as such. This attitude was extended to the Bible. As William Jennings Bryan put it: “The one beauty about the word of God is that it does not take an expert to understand it.” This notion in turn complemented distrust of scientific elitism, and the competence of parents, taxpayers and schoolchildren to decide on the validity of evolution. In response to questions whether the jury at the Scopes Trial was competent to judge on evolution, Bryan commented: “According to our system of government, the people are interested in everything and can be trusted to decide everything, and so with our juries” (quoted in Hofstadter 1962:128). Requiring the teaching of evolution is simply the subversion of the will of the majority.

G.M. Price, in his *Evolutionary Geology and the New Catastrophism* (1926:318) quotes approvingly an anonymous 1857 book *Voices from the Rocks; or Proof of the*

Existence of Man During the Paleozoic or Most Ancient Period of the Earth (actually written by William Elfe Tayler) which refutes the standard geological chronology:

These discoveries are so clear and incontrovertible that impartial inquirers after the truth are amazed at the obstinacy with which geologists persist in shutting their eyes to the real facts in the case. The world offers no parallel to such conduct, unless, perhaps, that of the Church of Rome in reference to the discoveries of Galileo. [1857:142]

Scientific Creationism, by Henry Morris and the ICR staff, says:

It is precisely because Biblical revelation is absolutely authoritative and perspicuous that the scientific facts, rightly interpreted, will give the same testimony as that of Scripture. There is not the slightest possibility that the facts of science can contradict the Bible. [1974:15]

Evolutionists often fail to comprehend how opposed to common sense evolution seems to many people, and how obvious it seems that adaptation is the result of conscious Design. George Vandeman, a Seventh-day Adventist with a weekly telecast from Thousand Oaks, California, says:

Wouldn't it be better—and easier too—to take the clear, simple, plain, understandable statement of Genesis that “in the beginning God created the heaven and the earth”? ... Isn't that easier than believing that life, unaided by intelligence, could arise from lifelessness? [1978:74,81]

CREATIONISM AS A KEY TENET OF FUNDAMENTALIST BELIEF

Although it is clear enough that the plainest, most literal reading of Genesis seems to preclude evolution—which was just the kind of interpretation that fundamentalism came to require—there were other factors in the first few decades of this century which contributed to evolution becoming such a key issue. The early fundamentalists often had a somewhat more tolerant attitude towards evolution. Most of the fundamentalist leaders accepted standard geological chronology, and more often than not were willing to accept some evolution of animals prior to man, or some mediating position. It was only later that anti-evolutionism became a key fundamentalist plank and a predominant concern of the movement, and that the issue became so sharply polarized.

As the fundamentalist movement took shape around the turn of the century, it tapped into a reservoir of pre-existing opposition to evolution amongst many Southerners. This type of anti-evolutionism was largely inchoate, and seems to have made little or no attempt to appeal to science. It was often hostile to science, as well as to modernism and liberalism, and was thus unlike the Bible-science creationism advocated by heirs to the natural theology and Protestant scholastic traditions. Rather than Bible-science, the attitude it represented was: “if science contradicts the Bible, then science can go to hell.” Nevertheless it provided a ready pool of anti-evolutionist sentiment which helped fuel the anti-evolution drive when fundamentalism became a major movement, and provided another source of potential converts to “scientific” creationism (though the creation-science leaders came from elsewhere—largely from high-technology areas).

As to why anti-evolutionism had become entrenched in Southern culture, one reason suggested by Marsden has to do with the sundering of denominations and churches caused by the Civil War. After the war, the churches did not reunite. One way to rationalize this continued split was to suppose that the Southern churches were

adhering to true biblical principles, but that their Northern counterparts were not. Evolutionism and other forms of liberalism were at this time spreading in the North, and so, by this reasoning, such attitudes must be un-biblical. Marsden points out that Northern criticisms of Southern slavery were interpreted in this fashion, as being opposed to true biblical principles. Northerners interpreted the Bible as being against slavery, but Southerners argued that a more literalistic interpretation seemed to condone or even command it. Marsden suggests that, having felt obliged to defend the literalist interpretation regarding slavery, there was a tendency to extend this defensive reliance on the more literalist interpretation into other issues as well (1983:573).

Many modern Christian Reconstructionists employ much the same reasoning (see later). Reconstructionist John Whitehead, following Rushdoony, switches the order around: he argues that the South defended slavery only because the heretical, revolutionary abolitionists sought to destroy the whole Christian, Calvinist, Southern way of life, of which slavery was but a part. In order to prevent this anti-Christian attack, Southerners were obliged to defend slavery. “The abolitionists, while utilizing the slave issue as a base, had a more fundamental motive than slavery for attacking the South” (1977:70): namely, destruction of the Calvinist, Bible-based society of the South. Whitehead, quoting a Calvinist theologian and historian, writes:

The leaders of the South and the Democrats in the North opposed the abolitionist movement, not because of slavery per se “but because of the philosophy and theology which it represented and because they clearly saw that if this radicalism were to gain supremacy in the national government then there must certainly come in its wake a radical political and social program which would threaten the established order and constitutional government for the nation as a whole.” [1977:71]

Rushdoony himself praises the Christian culture of the South prior to the Civil War, claiming, like other Reconstructionists, that although slavery had some evil aspects, it was no worse than the statist economic subjugation of blacks which was the consequence of Northern victory. Because of the Civil War, “The old [Christian, Calvinist] order was overthrown by ‘a great domestic tragedy that synchronized chronologically with an intellectual revolution overseas’ [i.e. Darwinism]” (Rushdoony 1978:79).

At any rate, this popular nineteenth-century Southern anti-evolutionism did not pretend to be based on any scientific opposition to evolution, but rather on the fact that evolution was perceived as Northern and unbiblical.

In the first two decades of the twentieth century, the theological and doctrinal strands which came to characterize fundamentalism (the pre-millennialist emphasis, Protestant scholasticism, Common Sense epistemological traditions, Princeton theology and the formal doctrine of biblical inerrancy) merged together in a militant anti-modern coalition to become the fundamentalist movement. This fusion was precipitated by a perception of social and cultural crises: a feeling that modernistic practices and ideas were assaulting the traditional, Christian basis of society, and that civilization was decaying and on the verge of collapse.

Darwin’s theory of evolution, and “higher criticism” of the Bible (which originated about the same time), were obvious targets for blame. “Higher criticism” involved study of the historical, cultural, and literary context of the Bible. To these new scholars, the Bible was no longer considered simply a supernatural revelation exempt from comparative study. To conservative believers, this represented a degradation of the

Holy Scriptures to a merely human level, and challenged its direct verbal inspiration, infallibility, and inerrancy—all doctrines which the fundamentalists came to insist upon.

In his book *Collapse of Evolution* (1922; originally 1905), Luther Townsend blamed evolution as a major causative factor for the misery and damnation of the new century. He quoted Benjamin Kidd's *The Science of Power* (a book much cited by later anti-evolutionists, including W.J. Bryan) to show "that the theory of evolution as presented by Nietzsche has a dominant tendency to paralyze everything in human life that is worth while."

It denounces Christianity as being a system calculated to make degenerates out of men, denies the existence of God, overturns all standards of morality, eulogizes war as both necessary and desirable, praises hatred because it leads to war, denies to sympathy and pity any rightful place in a manly heart and endeavors to substitute the worship of the superman for the worship of Jehovah. [Kidd, quoted in Townsend 1922:35]

Between 1910 and 1915, a series of twelve small paperback books called *The Fundamentals* was published and widely distributed. This series, aimed at setting forth the "fundamentals" of Christianity (as did the earlier "Five Points of fundamentalism"), did much to define and publicize the new movement. It was conceived by Los Angeles millionaire Lyman Stewart of Union Oil, who, with the aid of his brother, distributed free copies of the initial volumes to every pastor, missionary, evangelist, theology professor and student, and YMCA or YWCA secretary in the English-speaking world (later volumes were sent on request). Stewart hired A.C. Dixon of Moody Church in Chicago to edit the series, to which many of the greatest American and British theologians contributed.

Although several authors criticized or attacked evolution in *The Fundamentals*, none insisted on recent creation or Flood Geology, and some permitted a mediating position. Rev. James Orr of United Free Church College in Glasgow, Scotland, for instance, writing on "Science and Christian Faith" in Vol. IV and on "The Early Narratives of Genesis" in Vol. VI, was willing to accept considerable evolution, but warned against equating evolution with Darwinism.

Certainly there would be contradiction if Darwinian theory had its way and we had to conceive of man as a slow, gradual ascent from bestial stage, but I am convinced that genuine science teaches no such doctrine. Evolution is not to be identified offhand with Darwinism. Later evolutionary theory may rather be described as a revolt against Darwinism, and leaves the story open to a conception of man quite in harmony with that of the Bible. [1912:(IV):96]

Orr advocated Day-Age creationism, and tried to allow for a form of non-Darwinian evolution within this framework. Gradual evolution by natural selection is now rejected by science, said Orr. Sudden evolution by large mutations can be seen to correspond to Genesis. This new "evolution" is thus "but a new name for 'creation'—the only difference being that it acts from within instead of externally (1912:(IV)102). Orr then affirmed that the origin of life, of consciousness, and of man's rationality and morality are steps which required special acts of creation by God. Man himself must be a special creation, whose origin may be as recent and "as sudden as Genesis represents. "Man's origin can only be explained through an exercise of direct creative activity, whatever subordinate factors evolution may have contributed."

George Frederick Wright, the respected Oberlin College geologist and minister, was selected to write on evolution from a scientific perspective. His approach was

similar to Orr's. He tried to allow for a non-Darwinian evolution within certain limits, but rejected naturalistic descent of all life from a common ancestor (see later).

Other contributors to *The Fundamentals* were harsher towards evolution. New York lawyer Philip Mauro (author of *Evolution at the Bar*), affirming the inerrancy of the Bible in matters of science as in other fields, declared that not a single fact supported evolution, and that it is contrary to science. Moreover, Darwin's theory is "directly contrary to the great and immutable law declared nine times over in the first chapter of the Bible in the brief but significant expression, 'after his kind'" (1910:27). "The theory of organic evolution, promulgated by Darwin and Wallace,⁷ has nothing to commend it except that it offers an alternative to the acceptance of the account of the origin of species given in the Bible" (1910:45).

It is useless to pretend that Darwin's theory might be true, and the Bible nevertheless entitled to respect. The Lord Jesus said to a learned man of His day, "If I have told you earthly things, and ye believe not, how shall ye believe if I tell you of heavenly things?" (John 3:12). If the Bible does not give us a truthful account of the events of the six days recorded in its first chapter, it is not to be trusted as to any of its statements. [1910:27]

Vol. VIII of *The Fundamentals* contains two attacks on evolution, by Rev. Henry Beach, and by an unnamed "Occupant of the Pew." According to "Occupant" in his article "Evolutionism in the Pulpit," Darwin's aim was to abolish dualism; his theory is not supported by a single scientific fact. "Occupant" derides attempts by ministers who seek to accommodate evolution by saying that the Bible was not meant to be authoritative in the realm of science. "In this way the story of creation as given in Genesis was set aside, and the whole book discredited" (1912:28). Citing several anti-Darwinian scientists, he claimed that even most scientists admit evolutionism is dead. Those who still cling to it are simply seeking a mechanistic explanation in order to deny "the hated alternative of accepting Genesis with its personal God and creative acts."

But when we consider that the evolutionary theory was conceived in agnosticism, and born and nurtured in infidelity; that it is the backbone of the destructive higher criticism which has so viciously assailed both the integrity and authority of the Scriptures; that it utterly fails in explaining—what Genesis makes to clear—those tremendous facts in human history and human nature, the presence of evil and its attendant suffering; that it offers nothing but a negative reply to that supreme question of the ages, "If a man die, shall he live again?"...it becomes evident to every intelligent layman that such a system can have no possible points of contact with Christianity. [1912:31]

Beach, in his article, "Decadence of Darwinism," also attempted to show that evolution is refuted by science, but emphasized that the religious and moral issues for its rejection were primary.

As a purely academic question, who cares whether a protoplasmic cell, or an amoeba, or an ascidian larva, was his primordial ancestor? It does not grip us. It is doubtful whether any purely academic question ever grips anybody. But the issue between Darwinism and mankind is not a purely academic question. [1912:36]

⁷ Though he opposed Wallace's evolutionism, Mauro admired his later argument that the design of the universe proved that Earth had been designed for habitation by man.

Asserting that “Darwinism degrades God and man,” Beach concludes that “The teaching of Darwinism, as an approved science, to the children and youth of the schools of the world is the most deplorable feature of the whole wretched propaganda” (1912:48). Other authors included in *The Fundamentals*, while not addressing evolution directly in their contributions to that series, opposed it in their other works (Pierson, J.M. Gray of Moody Bible Institute, Bettex, Dixon, Scofield, Gaebelein).

However, the fundamentalist campaign against evolution did not really capture the attention of the public until after *The Fundamentals*. When it did, fundamentalists renounced all forms of compromise, and insisted on as strict a creationism as possible (though even then, most felt that science proved it impossible to give up the geological ages). Among the factors which intensified this focus on evolution were the dramatic increase in public secondary school enrollment and the shock and horror of the Great War.

In 1890 barely 200,000 pupils attended high school—only 3.8% of the nation’s high-school-age population. This number doubled every decade up to 1920, at which time there were 1,851,968 high-school students (E. Larson 1985:26). By the 1920s, evolution was being introduced into many high-school curricula. As Hofstadter put it, evolution had reached the high schools, and the high schools had reached “the people” (1962:126). Previously, relatively few people had been exposed to evolutionist teaching, but now, many students were being exposed to evolution in the high schools, as the fundamentalists realized, and they quickly began to sound the alarm.

T.T. Martin, who once taught science at a Texas Baptist college, was Director General of the Bible Crusaders of America and Field Secretary of the Anti-Evolution League of America, was the author of *Hell and the High Schools: Christ or Evolution, Which?* (1923). Martin demanded that public school boards refuse to employ “any teacher who believes in evolution,” and that all teachers be required to attack evolution and “expose it every time it comes up in any textbook.”

It will be shown...that the teaching of evolution is being drilled into our boys and girls in our high schools during the most susceptible, dangerous age of their lives. .. Ramming poison down the throats of our children is nothing compared with damning their souls with the teaching of evolution, that robs them of a revelation from God and a real Redeemer. [Quoted in Gatewood 1969:238]

Martin flatly rejected the “whining” argument that evolution should not be banned because doing so would violate academic freedom. Evolution eternally “damns the souls” of those who believe it; thus, there must be no freedom to teach it.

Fundamentalists were convinced that the World War was caused by the Germans’ enthusiastic adoption of an all-encompassing evolutionist philosophy. Germany was also the home of “higher criticism” of the Bible, and of Nietzsche (whose vision of an “Übermensch” “beyond good and evil” and the “Will to Power” was largely misunderstood by both the majority of his German proponents and fundamentalist opponents). It was in the years immediately following World War One that fundamentalism became an aggressively militant movement.

In *The Menace of Modernism*, W.B. Riley complained that the universities were saturated with destructive, antibiblical German philosophy and theories (1917:90-91), chief among them evolution.

In the final chapter of *God—or Gorilla* (1922), Alfred W. McCann accuses evolutionism of fostering German militarism. Popularized versions of evolution were appealed to by writers such as General Friedrich von Bernhardt to justify their “might makes right” policies:

Seizing the scientific theory of evolution which the people by this time “understood thoroughly,” the new prophets of materialism applied it not only to the field of biology but to the field of sociology, so that Spencer’s phrase “the survival of the fittest” was employed as an explanation of the birth and rise of NATIONS. Nothing could have been more inevitable. [1922:327]

McCann quotes Bernhardt as saying, in *Germany and the Next War* (1912):

The struggle for existence is, in the life of Nature, the basis for all healthy development. ... War gives a biologically just decision. ... But it is not only a biological law, but a moral obligation, and, as such, an indispensable factor in civilization.

McCann continues:

Darwinism had saturated the war-lords with all the catchwords essential to the prosecution of their designs and the people, lured by the promises of mad men and the nomenclature of a science which they knew only through the shallow writings and lectures of popularizers, were prepared to follow to the end, little dreaming of the carnage, starvation and disease toward which their “progressive” evolution was now thundering its flight. [1922:328-329]

A work very frequently cited to show the influence of evolutionism on German militarism during this period was Vernon Kellogg’s *Headquarters Nights* (1917). Kellogg was an entomologist (and an evolutionist, the author of *Darwinism Today* and popular textbooks of evolution) at Stanford University. During the war he served with the international Belgian Relief Committee, during which duty he was often stationed at the headquarters of the German General Staff and German Army of Occupation of Belgium. In his discussions with German officers, Kellogg was appalled to discover the extent to which they preached the crudest form of social Darwinism as justification for aggressive militarism. They sincerely believed that this “might makes right” philosophy was firmly based on biological laws of the struggle for existence as established by Darwin’s evolution. “It is a point of view that justifies itself by a wholehearted acceptance of the worst of Neo-Darwinism, the Allmacht of natural selection applied rigorously to human life and society and Kultur” (1917:22).

Kellogg met one officer who was a prominent biology professor, and they discussed at length the biological argument for war.

Professor von Flussen is Neo-Darwinian, as are most German biologists and natural philosophers. The creed of the *Allmacht* of a natural selection based on violent and fatal competitive struggle is the gospel of the German intellectuals; all else is illusion and anathema. [1917:28]

This struggle not only must go on, for that is the natural law, but it should go on, so that this natural law may work out in its cruel, inevitable way the salvation of the human species. By its salvation is meant its desirable natural evolution. That human group which is in the most advanced evolutionary stage as regards internal organization and form of social relationship is best, and should, for the sake of the species, be preserved at the expense of the less advanced, the less effective. It should win in the struggle for existence, and this struggle should occur precisely that the various types may be tested, and the best not only preserved, but put in position to impose its kind of social organization—its *Kultur*—on the others, or alternatively, to destroy and replace them.

This is the disheartening kind of argument that I faced at Headquarters; argument logically constructed on premises chosen by the other fellow. Add to these assumed premises of the *Allmacht* of struggle and selection based on it, and the contemplation of mankind as a congeries of different, mutually irreconcilable kinds, like the different ant species, the additional assumption that the Germans are the chosen race, and German social and political organization the chosen type of human community life, and you have a wall of logic and conviction that you can break your head against but can never shatter—by headwork. You long for the muscles of Samson. [1917:29-30]

Previously a pacifist, Kellogg became convinced that Germany had to be defeated totally in order to eradicate this rapacious militarism. His book was widely cited by fundamentalists as proof that evolutionism leads inexorably to “might makes right” militarism. But Kellogg himself emphasized—and this, significantly, the fundamentalists never mentioned—that the “struggle for existence” of natural selection is only one aspect of biological evolution, and that the German officers, by worshiping this one aspect as the whole of evolution and as the basis for their social and moral philosophy, were not doing justice to biological evolution. For instance:

Altruism—or mutual aid, as the biologists prefer to call it, to escape the implication of assuming too much consciousness in it—is just as truly a fundamental biologic factor of evolution as is the cruel, strictly self-regarding, exterminating kind of struggle for existence with which the Neo-Darwinists try to fill our eyes and ears, to the exclusion of the recognition of all other factors. [1917:27-28]

And Kellogg, in many other works, repeatedly emphasized the “limitations of science,” and that, contra the fundamentalists and many others, morality and philosophy were not derivable from science. Nevertheless, the fundamentalists who appealed to Kellogg’s *Headquarters Nights* were correct in that this *Allmacht* version of evolutionism and invocation of inexorable biological law was indeed how these German officers—and a great many others in other nations—interpreted evolutionary theory and its implications regarding society, politics, morals and religion. William Jennings Bryan echoed widespread fundamentalist belief when he asserted that “Darwin’s doctrine leads logically to war,” and that it laid the foundations for the World War, the “bloodiest war in history” (1922:133, 125). Germany’s appalling condition was caused by infection by evolution: a fate which the fundamentalists were determined to prevent in America. Before the Great War, Bryan doubted evolution, but hardly made an issue of it; after the war, he campaigned indefatigably against it, preaching that it destroyed Christianity and justified war.

T.T. Martin, in *Hell and the High Schools*, said:

We gave our sons to save the world from being crushed by the Germans, and we did well; but they had already stealthily crept in and captured our citadels of learning, and now they and their dupes are damning our children. The soul of one high school boy or girl sent to hell by your German evolution is worth more than the bodies of all our brave boys killed in the great war in Europe. But they are being sent to hell by the thousands, as I shall show. [Quoted in Gatewood 1969:241]

“It has been asked,” wrote Alexander Hardie in *Evolution: Is It Philosophical, Scientific or Scriptural?*:

Where do theories go when they die in Germany? It is answered: They go to England. And when they die in England, where do they go? They go to America. And when they die in America, where do they go? Well, it appears to some that they are smuggled into our institutions of learning and that the carrion is fed to

the students. That is probably the reason why in some cases Christian freshmen become infidel seniors. [1924:117]

Besides Nietzsche and *Headquarters Nights*, two other books frequently cited by Bryan and other fundamentalists as proof that Darwinism led to atheism and immoral behavior such as exhibited by Germany were Benjamin Kidd's *The Science of Power* (1918), and James Leuba's *The Belief in God and Immortality* (1921). Kidd's book (already mentioned as cited in Townsend's *Collapse of Evolution*; discussed in Bryan 1922:126) also argued that Darwinism swept away the moral restraints imposed upon civilizations by Christianity, and became a justification for war, especially in Germany.

Leuba's book is subtitled "A Psychological, Anthropological and Statistical Study." Leuba, a psychology professor at Bryn Mawr College, sent questionnaires to college students and to scientists regarding their belief in God and in the immortality of the soul. As Bryan pointed out, in his intended closing address to the Scopes Trial (National Book 1925:329-330) and elsewhere, Leuba's survey showed that scientists were much less likely to believe in a personal God than non-scientists, and that students' belief in God and in immortality declined significantly in college: a finding which Bryan and many other fundamentalists found highly alarming.

Dan Gilbert, in *Evolution: The Root of All Isms*, discussed Leuba's study as proof that evolution was the root of atheism (1935:93-94). Arthur I. Brown, in *Miracles of Science*, a series of Moody Bible Institute radio lectures designed to demonstrate the "indisputable, scientific fact of a personal Creator-God," also cites Leuba's study (1945:244). It is interesting to discover that despite the widespread appeal to Leuba by anti-evolutionists, his study does not even mention evolution. None of the survey questions or answers deal with evolution, nor does Leuba discuss it in his analysis, though fundamentalists have naturally assumed that the teaching of evolution has been a prime cause of students' loss of belief.

More than anyone, William Jennings Bryan made antievolutionism the most prominent issue on the fundamentalist agenda. A three-time presidential candidate, Bryan had been Wilson's Secretary of State (resigning when Wilson allowed the U.S. to be drawn into World War One), and had been a progressive, anti-imperialist politician (he strongly opposed American intervention in the Philippines, for example). He was also a leader of the Populist movement, and campaigned for a graduated income tax, women's suffrage, and many other progressive reforms, thus transforming the often radical socialist tendencies of Populism into effective political reformism and guiding it into the Democratic Party. Both before and after the war, peace and moral reform remained Bryan's chief concerns. After the war, he dedicated himself to promoting fundamentalist Christianity as the necessary—and only—basis for peace and morality. The "Great Commoner," he distrusted elites—especially scientific elites who promoted evolutionism in public education even though ordinary citizens objected to it as destructive to their religion. Bryan differed from most fundamentalist leaders in that he never advocated premillennialism: Marsden describes his reformist views on culture and religion as amounting to "a very vague sort of postmillennialism" (1980:135).

All this came to a head, of course, in the 1925 Scopes Trial. This was during the peak of fundamentalist influence. Prohibition was now law, and fundamentalists were seeking other ways to use their new political power to stem the precipitous decline in American morality.

Fundamentalism had always been—and still is—a *non-* or *trans-*denominational movement. Although there are some fundamentalist denominations, most fundamentalists belong to fundamentalist wings of generally larger denominations which are not wholly or officially fundamentalist. Most of the important fundamentalist organizations are non-denominational: both now and in the 1920s. The peculiarity of the 1920s was that fundamentalism had become so popular that many if not most of the major denominations came very close to being taken over by the fundamentalists. With this kind of power, it is hardly surprising that fundamentalists attempted to influence society by direct political means, despite their predominantly pre-millennialist belief, which otherwise did not dispose believers to engage in political action, but encouraged them to concentrate on soul-winning and to await the inevitable worldly triumph of Satan, the Rapture, and the Second Coming.

During this period, the fundamentalists got anti-evolution laws passed in many states, but their political power declined—in large part due to the sensational publicity generated by the Scopes Trial. With this loss of political clout, fundamentalists rather quickly withdrew from “the world,” retreating into their own institutions and enclaves, where, however, they continued to evangelize, publish, and organize. Meanwhile, the anti-evolution laws were to have a long-lasting effect, and fundamentalists continued actively to write creationist books, though few outside their circles paid any attention to them. When the modern “creation-science” movement emerged in the 1960s, it shifted its strategy somewhat, but drew many of its arguments not only from the anti-evolutionism of the 1920s, but from an unbroken tradition of fundamentalist antievolutionism, which, though largely invisible to non-fundamentalist outsiders, continued to flourish on a reduced scale, confined mostly to its own institutions.

During the peak years of fundamentalist influence in the 1920s there were a number of organizations dedicated to the eradication of evolution. Four hundred delegates to the World’s Christian Fundamentals Association met in 1922 in Los Angeles for the Fourth Annual Great Christian Fundamentals Conference. According to Shipley (1927:239) they resolved to “wage a relentless warfare on Evolution and Modernism.” The published volume of the Conference proceedings, *Scriptural Inspiration versus Scientific Imagination* (1922), includes anti-evolution chapters by prominent fundamentalists Riley, Keyser, and Dixon. The Bryan Bible League was founded in 1925 in Turlock, California to continue Bryan’s fight against evolution (Shipley 1927:255).

The initial announcement of the National Anti-Evolution Society reads:

Whereas there is a strong organization in the United States whose purpose is the teaching of the unscientific and un-Christian theory of evolution, and the dissemination of information in support of that theory, and Whereas evolution denies the Divine Creation of Man, the Divinity of Jesus Christ, and disparages and belittles the Christian religion and the Creative Powers of God, and

Whereas the evolutionists are engaged in a campaign to fasten this pernicious doctrine upon the public schools and colleges, and instill this false, absurd, and debauching theory in the youthful minds of the country, and thereby seek to overthrow our Christian Civilization, and all institutions which are based upon a belief in the Supreme Power of God, and the Divinity of Christ, and establish in their stead the materialistic pagan civilization with all its attendant and degrading influences, and

Whereas it is the established policy of our National and State governments to maintain the public schools as non-sectarian and non-denominational institutions, and prohibit the teaching of any creed, theory or doctrine not acceptable to all believers in the sacredness of the Bible upon which our governments are founded;

Therefore it becomes painfully necessary to organize a National Anti-Evolution Society as a defensive organization to combat the erroneous doctrines and theories which are being taught, and which false doctrines are being driven into unsettled minds, through a campaign of misleading assertions and vituperative insinuations and epithets never before equalled in the history of the country. [Quoted in Shipley 1927:380]

Gerald Winrod, author of *Science, Christ and the Bible* (1929), founded the Defenders of the Christian Faith in order to combat modernism and evolution, and was editor of *Defender* magazine, which published articles by W.B. Riley and other anti-evolutionists. Besides being fiercely opposed to evolution, Winrod was an outspoken anti-communist and anti-Semite, and was decidedly pro-Nazi.

Shipley quotes Billy Sunday, the former baseball player who became a star evangelist, as saying (in Los Angeles) that “if a minister believes and teaches evolution, he is a stinking skunk and a liar” (1927:251; see also quote in *Bull. Tychonian Soc.* 1988:(48):43 by Sunday describing evolution as “poppycock”). Aimee Semple McPherson, the sensational, flamboyant (and alluring) Pentecostalist preacher of Angelus Temple in Los Angeles, conducted ritual hangings of “monkey teachers.” In 1926 McPherson disappeared from a local beach, re-emerging later with a wild tale of having been abducted by agents of her deadly enemies: dope dealers, gamblers, and evolutionists. She hinted that her abductors “might be found among the evolutionists connected with...Stanford and the University of California” (Shipley 1927:252; de Camp 1969:21). It soon became apparent that she had actually enjoyed a clandestine and amorous liason with her radio technician.⁸

Alexander Hardie wrote *Evolution: Is It Philosophical, Scientific or Scriptural?*, published by Times-Mirror Press of Los Angeles, to “save our dear school children and students from the mental and moral defilements of the “Mud Philosophy” (1924:v-vi). Evolution, said Hardie, which defies mud and monkeys, is “proof of the mental and moral insanity of man,” and of “the unregenerate wish to avoid the Divine Presence...” (1924:232).

Thus, it is seen that this disgraceful craze for an animal ancestry is built upon nothing but suppositions. Consequently, it requires very little learning or courage to defy the animalizing evolutionists—these agnostics, infidels and atheists; these benighted materialists—to give philosophical data for evolution... It is amazing that this intellectual inanity has had such a rage in our country and has so sorely afflicted our schools. All unbelievers are making frantic efforts to propagate this man-dishonoring and God-denying, Satanic explanation of the Cosmos, to the mental and moral debasement of the rising generation. Slanderers of our divine humanity! [1924:41]

When we consider that evolution has always had its origin among agnostics and the more benighted heathen; that it is utterly without any philosophical foundation; that it is absolutely unscientific, and infernally unscriptural; and that its influence not only upon the rising generation, but also upon its propagators, is degrading and demoralizing, it becomes the imperative duty of all good citizens to renounce and denounce this crying abomination, and as Christ drove clean animals out of the temple, how much more should Satan’s unclean hairy beasts be driven out of our Christian Churches and schools!

⁸ I jog along the stretch of beach from which McPherson claims to have been kidnapped. Bhaktivedanta Swami Prabhupada, head of the International Society for Krishna Consciousness (the “Hare Krishnas”) used to go for long walks along this same stretch of beach in the 1970s. On these walks he dictated many of his anti-evolution teachings to disciples, such as contained in *Life Comes from Life* (1979) and *Origins—Higher Dimensions in Science* (Bhaktivedanta Institute, 1984).

At the present time there is dire need for all Church and school authorities to drive this vile “doctrines of devils” (I Tim. 4:1) out of all pulpits and classrooms, and to purge our fair land from this vileness. Let all lovers of truth and youth unite in a holy crusade for the restoration of the Bible to its rightful place of honor in the schools and colleges of the nation, and for the eradication of this loathsome mental leprosy which has recently become a world calamity. Only in Christ is there healing for this deadly disease. [1924:226]

Baptist preacher J. Frank Norris of Texas called evolution “the most damnable doctrine that has come out of the bottomless pit”; and vowed, in testimony before the Texas legislature when it was considering a bill banning the teaching of evolution, to resist “that hell-born, Bible-destroying, deity-of-Christ-denying, German rationalism known as evolution,” and to “drive the theory of evolution out of church and public schools in all states” (quoted in Shipley 1927:171-172,177).

The anti-evolutionist fundamentalists were not engaged as much in a “war against modern science” as Shipley and others have supposed, but they definitely felt they were waging a war against *something*. Shipley’s *War on Modern Science* (1927), and, before that, Andrew White’s *History of the Warfare of Science with Theology in Christendom* (1896) and John Draper’s *History of the Conflict Between Religion and Science* (1875), exaggerated the warfare motif in more ways than one, since many theologians and religious believers had always tried to accommodate their religion to scientific doctrines, and even the fundamentalists considered themselves advocates of “true science” (though they did oppose much of modern scientific theory). But in any case, the fundamentalists themselves insisted on militant metaphors of warfare and battles to the death against evolution and other Satanic threats to religion and society.

Meanwhile, throughout the decades which saw the spectacular rise of fundamentalist influence and activism, George McCready Price, with his insistence on literal, recent creationism and his re-invention of Flood Geology, was providing a plausible-sounding basis for a “scientific” strict creationism.

CHAPTER 2

ORIGINS OF MODERN “SCIENTIFIC” CREATIONISM: 1900-1960 GEORGE McCREADY PRICE

George McCready Price strove throughout the first half of this century to convince the world that strict, recent creation was a fact required by both the Bible and by science. Price, a Seventh-day Adventist, took seriously Adventist prophetess Ellen G. White’s insistence on strict creationism. White, whose writings are considered divinely inspired by Adventists, strongly emphasizes a recent, literal six-day Creation and the world-wide Flood of Noah. In *Patriarchs and Prophets* (1958:28; originally 1890) White wrote that the biblical account of creation:

is so clearly stated that there is no occasion for erroneous conclusions. God created man in His own image. Here is no mystery. There is no ground for the supposition that man was evolved by slow degrees of development from the lower forms of animal or vegetable life. Such teaching lowers the great work of the Creator to the level of man’s narrow, earthly conceptions. Men are so intent upon excluding God from the sovereignty of the universe that they degrade man and defraud him of the dignity of his origin.

The Creation Week consisted of seven literal days; its commemoration in our ordinary week, and observance of the Sabbath—the Seventh Day—is of utmost concern to White. To assume that these creation days could be long ages is to deny the Fourth Commandment in which God gave us our week and our Sabbath directly from Creation Week. “The sophistry in regard to the world’s being created in an indefinite period is one of Satan’s falsehoods.”

White was implacably opposed to the teaching of evolution. *Principles of True Science: or Creation in the Light of Revelation*, a collection of excerpts from her writings, contains these warnings:

Evolution and its kindred errors are taught in schools of every grade... Thus the study of science, which should impart a knowledge of God, is so mingled with the speculations and theories of men that it tends to infidelity. [1986:166-167]

We need to guard continually against those books which contain sophistry in regard to geology and other branches of science... [T]hey need to be carefully sifted from every trace of infidel suggestions... It is a mistake to put into the hands of the youth books that perplex and confuse them. [1986:227]

White also emphasized that earth history could only be properly interpreted by reference to the worldwide Flood of Noah. She simply rejected the findings of modern geology, insisting instead that geological features must have been formed as a result of the Flood. The earth was created exceedingly beautiful and bounteous, but it began to deteriorate as a result of Adam’s Fall. It was completely devastated by the Flood, and much remains desolate even today: “The entire surface of the earth was changed at the flood.” The fossils found by geologists which appear to deny the Mosaic chronology are of immense and fantastic antediluvian creatures, all buried by the Flood. Geology cannot tell us the age of such fossils; only the Bible can. Violent winds and currents buried the remains of the pre-Flood inhabitants; mountains were heaped up; minerals useful to man

were hidden underground. The Flood buried immense forests which formed today's coal and oil deposits. White stressed that the Flood catastrophe is a warning of the coming destruction of the world prior to the imminent second Advent or Coming of Christ.

Price attended Battle Creek College, the Seventh-day Adventist institution in Michigan, then taught school in his native Canada. He taught himself geology in order to refute evolution and prove literal creation, and became a science professor at various Adventist colleges in Nebraska and Washington, and at the College of Medical Evangelists in California (now Loma Linda University, famed for its medical school).

In his *Outline of Modern Science and Modern Christianity*, published by "Modern Heretic Co." in 1902 (Modern Heretic happens to have the same address as Price's home in Los Angeles), Price first presented his major Flood Geology arguments, including the central claim that the geological record does not prove a succession of ages, but rather shows a "taxonomic" series representing different but contemporaneous zones of antediluvian life. He continued to campaign for creationism in dozens of books into the second half of the century. In his 1902 work he discussed:

The Evolution Theory in its whole range, from the Nebulous Cloud, the Cooling Earth, and the Origin of Life, through Geology and Biology up to the Moral Nature of Man, Carefully discussed in a Popular Style. No one, after reading it, could for a moment suppose that the Evolution Theory had been proved by sound scientific arguments, while the moral and religious tendencies of the doctrine are shown to be anti-Christian to the last degree.

Price urged a return to "primitive" Christianity, including belief in the plain interpretation of the Creation narrative:

No believer in the Sabbath as the divine memorial of creation's week will hesitate to give as the distinct, positive teaching of Genesis that life has been on our globe only some six or seven thousand years; and that the earth as we know it, with its teeming animal and vegetable life, was brought into existence in six literal days.

Price enthusiastically expanded on his refutation of modern geology and advocacy of Flood Geology in a 1906 booklet *Illogical Geology: The Weakest Point in the Evolution Theory*, also published at home by Modern Heretic. In it he offered \$1000 for proof of any difference in the age of fossils. His major thesis is a denial of the Wernerian "onion-skin" hypothesis⁹ of rock strata: the assumption of worldwide orderly superposition of successive strata. Arguing instead that the different fossil assemblages represent different (but contemporaneous) ecological zones, he insisted that geological strata can and do appear in any order whatsoever—that the alleged "geological column" is a myth. "Illogical Geology" was the title of an 1890 essay by Herbert Spencer. Spencer, though an evolutionist, also rejected the assumption of Werner's Neptunian onion-coat theory that the same type of rock was deposited worldwide for each era. Price complained that modern geologists had abandoned Werner's Neptunian version, only to substitute for it a modern biological version in which worldwide successive layers as defined by index fossils are still assumed without warrant.)

⁹ Price, defending true science against speculative theories, says of Werner (1923:592): "In all this speculation, he was, of course, wandering far from true inductive methods. Quite likely he never heard of Bacon's *Novum Organum* or Newton's *Principia*."

“Inductive geology can never prove creation,” Price conceded. But, he proclaimed, it “removes forever the succession-of-life idea,” thus clearing the way for Creation by demonstrating the falsity of evolution by demolishing its geological foundation. Darwinism requires geology’s theory of succession of ages and succession of life-forms. If that theory is refuted, evolution is also. Evolution, says Price,

has no more scientific value than the vagaries of the old Greeks—in short, from the standpoint of true inductive science it is a most gigantic hoax, historically scarce second to the Ptolemaic astronomy... With the myth of a life succession dissipated once and forever, the world stands face to face with creation as the direct act of the Infinite God.

The *Fundamentals of Geology: And Their Bearing on the Doctrine of a Literal Creation*, Price’s 1913 book which was *dedicated* to Bacon and Newton, is an expanded version of *Illogical Geology*. *The New Geology* (1923), a textbook, was Price’s most authoritative presentation of his creationist interpretation of geology. In it he elaborates on his “great law of conformable stratigraphic sequence,...which is by all odds the most important law ever formulated with reference to the order in which the strata occur” (1923:637). This law is simply the assertion that: “Any kind of fossiliferous beds whatever, ‘young’ or ‘old,’ may be found occurring conformably on any other fossiliferous beds, ‘older’ or ‘younger’”; in other words, a denial that the stratigraphic order of rocks or of fossils can tell us anything about either their absolute or even their relative age.

There is virtually no mention of biblical creation or the biblical Flood in *The New Geology*, except for the last two chapters, “The Hypothesis of a World Catastrophe,” and “The Origin and Antiquity of Man.” Except for these final chapters, the discussion is strictly scientific in format and content, though Price refutes uniformitarianism and rejects the geological column as a purely artificial construct. In the final chapters, Price explains that the Earth before the Flood was an “ideally perfect world, of which the present one is but the partly salvaged ruins” (1923:681). Some cosmic catastrophe knocked the Earth off its original perpendicular axis to its present inclined position, producing enormous tidal waves sweeping around the whole globe twice a day, traveling 1,000 miles per hour at the equator (1923:682, 684-685). Such currents, said Price, would account for the characteristic alternation of sedimentary deposits.

W.B. RILEY AND HARRY RIMMER

While Price was constructing scientific as well as biblical arguments for strict creationism throughout the first half of the century on the basis of White’s Adventist teachings, the emerging Fundamentalist movement was beginning to concentrate on evolution as one of its chief targets. Numerous fundamentalist writers and leaders appealed to scientific as well as biblical arguments in their attacks on evolution, though relatively few insisted, as Price did, upon a recent creation. In fact, as Numbers notes, a serious weakness in the fundamentalist antievolution campaign was their “failure to agree on a theory of creation” (1982:540). The two leading promoters of creationist “science” in the 1920s, besides Price, were William B. Riley and Harry Rimmer. Neither were young-earth creationists. Riley advocated Day-Age creationism, assigning a long geological age to each creation ‘day,’ while Rimmer favored Gap Theory creationism,

retaining belief in a literal six-day creation but arguing that this was preceded by vast geological ages and previous life-forms. Thus three major theories competed against each other in the 1920s—and indeed all three are still competing today. In fact, while Price raged against all compromises with strict young-earth creationism, Riley and Rimmer held friendly but serious debates on Day-Age versus Gap Theory creationism (Riley and Rimmer's 1929 *A Debate: Resolved, That the Creation Days in Genesis Were Aeons Not Solar Days*; also *The Creation Days of Genesis: A Profound Debate Between Dr. W.B. Riley and Dr. Harry B. Rimmer*, 1974).

William B. Riley, pastor of First Baptist Church in Minneapolis, was the founder of the World's Christian Fundamentals Association in 1919, and also founder and president of Northwestern Bible College. Riley declared that evolution was even worse than compulsory vaccination:

I confess to no small degree of revolt against having an impure virus forced into the pure blood of a girl of perfect health; but a thousand times over would I prefer my daughter's blood tainted, and her flesh scarred for a time, to having her mind tainted with infidelity and her soul scarred for eternity. I believe in education, but not in an Anti-Christian one! I believe in Science, but not in an anti-scriptural one! I believe in the college, but not if it deny my Christ...

When Christ is no longer worshipped, men will sink back into cannibalism... [1917:127-128]

Riley's 1923 book *Inspiration or Evolution* was a "call to arms" to protect American democracy and Christian faith against the destructive doctrines of modernism and evolution. The title refers to the divine origin of the Bible as opposed to its supposed "evolution" according to Higher Criticism. But Riley attacks biological evolution ferociously as well, emphatically asserting that evolution promotes atheism and anarchy. Evolution is not science, and it destroys the Christian beliefs of students to whom it is taught. Proclaiming that "bestial Bolshevism" is the product of evolution, Riley writes that the Soviets are actively seeking to control U.S. education by planting the evil seed of evolution in our schools. "Science is now the subtle word of Satanic employment," he warns; he then goes on to quote many academics and scientists who oppose either evolution or Darwinism.

Riley demanded that evolution be removed from both private and public schools. Since it is false, it should not be taught. Riley rejected the accommodationist view that science and the Bible spoke of different but harmonious truths.

To be sure, all truths are harmonious! But why speak of evolution as a truth? ... Our entire contention is that in its conception, development and application, evolution is utterly false; as false to science as to Scripture; and so Scripture and this unproven and unprovable hypothesis can never speak together. "What communion hath light with darkness?" Truth is the embodiment of intolerance! It cannot be forced into any fellowship with falsehood. God's Word is truth! Darwin's theory is a falsehood and between them there can be no fellowship! [1923:116-117]

...I affirm without fear of contradiction—For this age, at least, the theory of evolution is the evil seed. It has evilly affected every ground into which it has been sown... [N]o two phrases were ever coined that became such shibboleths of blood as "The struggle for existence," and "The survival of the fittest" proved in the combat of 1914-1918. "By their fruits ye shall know them." If any philosophy was ever weighed in the balance and found wanting, to such an extent that intelligent men ought to turn with loathing from the same, it is the theory of evolution... [1923:122-123]

The tares of evolution have been surreptitiously sown. [W]hen, five years ago, the Christian Fundamentals Association began to fight this theory, it was soon discovered that, like cuckoos, they had laid their eggs in

almost every college nest, and made sacred endowments to unwittingly hatch them, and unknowingly nurture their young, and sent them forth to propagate their kind! It begins to look as though, in origin and animus, it is another anarchistic, socialist propaganda. [1923:124-125]

Fill a nation with the German conceit that “We are the superior race, and all the women of weaker nations are our natural prey, and the men of such nations our legitimate servants”, and you turn the world into a slaughter house, and, as one has said, “There is no logic to show why such a code of international ruffianism is wrong or at all blame-worthy if the evolution theory be true.” Its premises granted, an Armageddon is the result. ... The triumph of Darwinism would introduce the day of the Great Tribulation! [1923:47]

Harry Rimmer, a Presbyterian minister, attended Whittier College and the Bible Institute of Los Angeles (now Biola University), and was at one time field secretary of Riley’s World’s Christian Fundamentals Association. He was a delightfully flamboyant lecturer and debater as well as a popular writer; debating against evolutionists was child’s play for him.¹⁰ Rimmer founded the Research Science Bureau in Los Angeles to promote Bible-science and creationism, and promoted himself as a research scientist. Beginning in the mid-1920s, the Research Science Bureau (it seems to have been a one-man operation) published a series of anti-evolution pamphlets by Rimmer; these were later incorporated into Rimmer’s book *The Theory of Evolution and the Facts of Science* (1966 [1935]). Rimmer’s confident, breezy style was quite effective and popular. He appealed to scientific evidence and arguments (but gives no specific references), and threw in a lot of impressive scientific terms and references, managing to sound quite authoritative and knowledgeable. His prose is simple to understand and sprinkled with homespun analogies, anecdotes and folksy humor.

Rimmer followed this book with *The Harmony of Science and Scripture* (1936), also originally issued as a pamphlet series. He boasts that he learned “double-jointed, twelve cylinder, knee-action” scientific vocabulary at medical college (he spent one term at a homeopathic school, according to Numbers 1982:539) and that he could out-argue any evolutionist. More seriously, he argues aggressively for the scientific inerrancy of the Bible and for the proven superiority of Bible-science.

In 1939 Rimmer offered \$1000 for proof of any scientific error in the Bible. One William Floyd,¹¹ believing he could demonstrate a number of errors, sued to collect the money. *That Lawsuit Against the Bible* (1956 [1940]) is Rimmer’s account of the ensuing trial in New York, which “ended in legally establishing the position of all who hold that the Word of God is inerrant.” Judge Shalleck ruled in favor of Rimmer. Interestingly, Rimmer defended the Bible’s inerrancy against one of Floyd’s claims—that the earth is extremely old, contrary to the biblical account of creation in six days—by arguing that the original creation occurred long ages before the six-day creation of Genesis: in other words, Gap Theory creationism. Rimmer’s lawyer, James E. Bennet, wrote his own account of the trial titled *The Bible Defeats Atheism* (1941).

¹⁰ Morris (1984b:92n) says: “Dr. Rimmer debated many leading evolutionists of his day, always before great crowds and always clearly winning each debate. Reading these accounts in Mrs. Rimmer’s biography makes it obvious that present-day debates are amazingly similar to those of his time.”

¹¹ Apparently the same William Floyd who donated prize money for a contest sponsored by Shipley’s Science League of America for the best essay on the topic “Why Evolution Should Be Taught in Our Schools Instead of the Book of Genesis.” According to Shipley (1927:67), rabid anti-evolutionist T.T. Martin (this was soon after after his *Hell in the High Schools*) sent in an essay under a phony name.

OTHER EARLY CREATIONISTS

In a 1925 book *The Evolution of Man Scientifically Disproved* Rev. William A. Williams gave the first full-scale presentation of one of creation-science's most popular and formidable arguments: the probability arguments against evolution. Williams presents fifty arguments decisively refuting evolution, most of them by the "acid test" of mathematical proof. These proofs are intended as an antidote to the textbooks promoting evolution, infidelity and atheism in the schools. When evolution is subjected to rigorous scientific examination of facts and mathematical logic, declares Williams, it fails utterly. Williams' first argument is based on the rate of human population increase. If the earth were as old as evolutionists claim, its population, according to this rate, would now be 2^{1040} —a number too vast even write out. "Q.E.D." This argument, though patently absurd in its assumption of unchanging rate, is still a favorite with modern creation-scientists. Henry Morris, for instance, praises Williams for originating it and other probability arguments (1984:106). Williams fills his book with huge numbers. He devises intricate calculations refuting chance origin of adaptive features. Noting that Darwin used phrases indicating uncertainty 800 times (after Riley), Williams multiplies these all together and solemnly announces that the probability of his argument for evolution being true is therefore only 6 out of a quintillion.

Williams also vehemently maintains that evolution is atheistic and therefore evil and untrue. In a forthright statement of the fundamentalist attitude, he states: "No one has a moral right to believe what is false, much less to teach it, under the specious plea of freedom of thought." (Many evolutionists would retort that the plea of freedom of religion does not give the right to teach, as science, false theories.)

The second half of Williams' book refutes various evolutionist arguments. Notable in this section is his presentation of the serology (blood test) evidence of biochemical relatedness between humans and other animals.

They tell us that the blood of a dog injected into the veins of a horse, will kill the horse, whereas the blood of a man injected into the veins of an ape results in very feeble reaction, which proves that the dog and the horse, they say, are not related by blood, while the man and the ape are so related. But a distinguished authority says, "The blood of the dog is poisonous to other animals, whilst, on the other hand, the blood and the blood serum of the sheep, goat and horse, have generally little effect on other animals and on man. It is for this reason that these animals and particularly the horse, are used in preparation of the serums employed in medicines." [1925:86-87]

Williams concludes that this proves, if anything, that the horse is more closely related to humans than is the ape. Naive and ignorant as this interpretation is (Williams completely misunderstands antibody reactions), it is repeated nearly verbatim in another "scientific" book a decade later (Paul Johnson 1938:578), and re-quoted in a recent tract based on this later book (Laymen's Home Missionary Movement, undated).

Rimmer's Research Science Bureau published a booklet *Evolution and the Bible* (undated; apparently 1920s) by Arthur I. Brown. Brown was a Vancouver physician who became a full-time Baptist preacher. He wrote a series of anti-evolution pamphlets up to the 1940s, plus several books. *Miracles of Science* (1945), based on radio talks for Moody Bible Institute, consists of various examples of design in nature. Each demonstrates the "indisputable, scientific fact of a personal, omnipotent Creator-God."

God and You: Wonders of the Human Body (1940s) presents the same argument based on human physiological design. “No speculative evolutionary hypothesis will suffice as an explanation of these wonders.” This popular book was reissued in a condensed edition titled *Wonderfully Made* (undated).

Byron Nelson wrote several classic scientific creationist works in this period, though they are little known outside of fundamentalist circles. *After Its Kind* (1927) demonstrates the impossibility of biological evolution, and includes most of the standard arguments used by today’s creation-scientists. *The Deluge Story in Stone: A History of the Flood Theory of Geology* (1931) concerns geology. Nelson, who was influenced by Price, insists on strict young-earth creationism and calls for a return to Flood Geology. *Before Abraham: Prehistoric Man in Biblical Light* focuses on anthropology—refuting the fossil evidence of the alleged descent of man from pre-human creatures. As an indication of the respect in which Nelson’s works were held, *After Its Kind* appeared in a revised edition in 1952 with a Foreword by John Whitcomb, and *The Deluge Story in Stone* was reprinted in 1968 with a foreword by Henry Morris.

Nelson, a Lutheran pastor, was strongly and explicitly biblical in his approach. He suggested that “dislike of the idea of creation is in fact the underlying reason for belief in evolution by many leading evolutionists.” His books are, however, filled with scientific references and scientific arguments as well. *The Deluge Story in Stone* is a rich source of information on the theories and opinions of ancient commentators, pre-Darwinian Flood Geologists, and more recent critics of evolutionary geology. Nelson claims that the early Church Fathers endorsed Flood Geology, and openly praises the early Flood Geologists. According to Nelson, Cuvier’s theory of multiple catastrophes started the unfortunate trend away from Flood Geology by minimizing the effect of Noah’s Flood. Nelson laments this trend, continued by Buckland, Penn, and other compromisers. He describes the complete eclipse of Flood Geology following the rise of uniformitarian geology and evolution, but calls attention to various heroic scholars who continued to uphold it in its dark days, before its twentieth-century resurrection by Price.

The Flood theory has not been abandoned because it does not satisfy actual geological conditions. There is nothing known about the earth’s geological state today which makes the Deluge theory any less satisfactory an explanation of the fossiliferous strata than in the days when the leading scholars of the world accepted it... It is a disregard for God and the sacred record of his acts, and nothing else, which has caused the discard of the Flood theory to take place.

Included in Nelson’s presentation of the arguments of the older Flood Geology proponents were many of the same “creation-science” arguments later used by Henry Morris in *The Genesis Flood* and later works. Nelson, for instance, devoted most of one chapter to a presentation of the Flood Geology of John Woodward. Woodward was a professor of physic (i.e. medicine) at Cambridge University, where he established the first chair in geology, and the Woodwardian Museum; he is buried next to Newton in Westminster Abbey. His 1695 book *An Essay Towards a Natural History of the Earth... with an Account of the Universal Deluge: and of the Effects It Had Upon the Earth* described how the Flood submerged the whole earth and deposited the rock layers and fossils we see today. Woodward postulated the sorting of sedimentary deposits and fossils by specific gravity, a means which was later employed by Morris (“hydrodynamic

sorting”) to account for the ordered strata. Woodward advanced the following propositions (quoted in Nelson 1968:28-30):

[1] That during the time of the Deluge...all the stone and marble of the antediluvian earth, all the metals of it, all the mineral concretions, everything, in a word, that had obtained any solidity, were totally dissolved and their constituent corpuscles all disjointed, their cohesion perfectly ceasing. [2] That all this sand, earth and the like, together with animal and plant remains were all assumed up promiscuously into the water and sustained in it in such a manner that the water and bodies in it together made up a common, confused mass. [3] That at length all the mass that was thus borne up in the water was again precipitated and subsided toward the bottom. [4] That this subsidence happened generally, and, as near as possibly could be expected in so great a confusion, according to the laws of gravity. [5] That the matter, subsiding thus, formed the strata of stone, of marble, of coal, of earth and the rest, of which strata. lying one upon another, the terrestrial globe...doth mainly consist. [6] That human bodies and the bodies of quadrupeds and other land animals, of birds, of fishes, as also trees, shrubs and all other vegetables...were not precipitated till the last, and so lay above all the former, constituting the supreme or outermost stratum of the globe.

Nelson stressed the importance of Woodward’s hypothesis of sorting by specific gravity (1968:35), but pointed out that, by itself, it was incomplete. To this agency must be added the hypothesis that the Flood consisted of successive tidal waves or currents sweeping back and forth, each wave depositing another set of sediments, thus accounting for the alternatively layered nature of much of the stratigraphic record. Flood Geologists such as John Williams were to add this later (1789), as Nelson carefully explained; and Morris, after Nelson, also made it an important feature of his Flood Geology.

William Bell Dawson, son of John William Dawson of McGill University, was, like his father, a geology professor at McGill. He was active in this era writing books and booklets such as *Forethought in Creation* (1925), *Evolution Contrasted with Scripture Truth* (1926), *The Bible Confirmed by Science* (1932), *Is Evolution True? Error and the Way of Truth* (1932). “The essential contrast between the doctrine of Evolution and the Bible, and the need to choose between them is thus clear”; the spread of unbelief is due to evolutionary teaching.

Captain Bernard Acworth, the founder and later president of the Evolution Protest Movement, was a British submarine commander (according to *Nature* 1973:360 he was reputed to have won a libel suit against Churchill), and also a respected amateur ornithologist. He wrote a 1929 book based on anti-evolution articles published in various journals (Morris 1984b:206; Acworth 1929). Later (1934), he wrote a book subtitled *The Tragedy of Evolution*, which is an eloquent plea for creationism. Stating that evolution and creation are “flatly contradictory,” he contends that if creationism were to be accepted as true, then Christianity would regain the ground it lost in England due to the advance of evolution. Evolution, he claimed, resulted in bad morals and evil behavior.

Acworth founded the Evolution Protest Movement in 1932. The EPM’s first leaflet (quoted in Munday 1986:41) explained the new organization’s motivation and objectives:

Dear Sir (or Madam),

The public is conscious that the country is in a critical state and that subversive doctrines are undermining every aspect of our national life. There must, therefore, be some fundamental fallacy operating in the mind of the country as a whole.

We believe this fallacy to be the acceptance, as true, of the theory of Evolution and its employment as the spring of action in all spheres...

Christianity sanctifies the individual and the home; Evolution glorifies the herd and is the parent of Socialism and Communism. In Russia the theory of evolution has supplanted Christianity. Darwin is the new Messiah.

We feel the public are being deceived. Evolution propaganda does not present the facts impartially; it dwells upon those which favour the theory, while suppressing those which oppose it. Such are not the methods of true, but of false, science.

Seventh-day Adventist Harold W. Clark carried on the pioneering tradition of George McCready Price. Clark studied under Price at Pacific Union College, then taught biology there himself for 35 years. His 1929 book *Back to Creation* is “A Defense of the Scientific Accuracy of the Doctrine of Special Creation, and a Plea for a Return to Faith in a Literal Interpretation of the Genesis Record of Creation as Opposed to the Theory of Evolution.” Clark wrote ten more books advocating strict creationism right up to 1980. “Any true scientific theory regarding the origin and early history of earth and its life,” he wrote (1947:3), “must agree with a plain, simple obvious rendering” of Genesis.

In *Genes and Genesis* (1940), Clark tried to correct the common accusation that all creationists must believe in absolute fixity of species. He allowed for some speciation, and regarded the created biblical “kinds” as larger taxa, with variation possible within kinds.

The record says that God created each “after his kind,” but does not say that variations were impossible. The creationist of today does not make any claims for the immutability of species... He has no dispute with modern science over the possibility of variation, isolation, natural selection, and such factors producing new species. He does, however, maintain that the world and its life originally came into existence in six days through the direct intervention of the power of God. In this position he holds his ground against the speculations and criticisms of all who attempt to interpose the theory of evolutionary processes in the place of the record of the creative fiat of the Almighty. [1940:138]

Clark continued to deny fixity of species in later books. The original plan of Creation has been subverted by Satan, he explained; this itself involved much mixing and variation within “kinds.” Some animals became carnivores. Parasites are clear examples of degenerative change. This denial of species immutability is part of Clark’s attempt at a “positive” treatment of creationism, rather than simply a debunking of evolution.

By the late 1930s, Clark began to realize that his mentor Price’s Flood Geology had certain shortcomings. He tried to update Price’s *New Geology* in 1946 with his book *The New Diluvialism*.¹² Though remaining a devout strict young-earth creationist and Flood Geologist, he added a discussion of post-Flood glaciation (Price simply attributed glacial effects to the Flood). He also introduced his Ecological Zonation theory, proposing that the systematic order of fossil strata results from burial by the Flood of different life zones or ecological communities. This was a departure from Price’s assertion that the strata could and did appear in any order. Price recognized different fossil assemblages, to be sure, but insisted that these could appear in any order; Clark proposed that these ecological zones, though still contemporaneous, followed a certain order from bottom to top; in other words, he accepted the standard geological column (though not its temporal implications).

¹² In *The New Geology* (1923:7), Price had written: “The first edition of any pioneer work of this kind, which endeavors to reconstruct the whole body of so highly developed a science as geology in many of its aspects now is, can not fail to be in many respects a crude affair; but the readers of the book can materially assist the author in making subsequent editions more in keeping with his high aims to build only on that solid ground of nature...”

According to Numbers (1982:541), Price, when he learned of Clark's apostasy, aimed a "vitriolic pamphlet," *Theories of Satanic Origin*, at his disloyal student. Though Price denounced him for years afterwards, Clark insisted that he was still a literal creationist, and that his disagreement with Price was "merely a matter of interpretation of details and never a question of fundamental concepts of creationism or diluvialism" (1966). In 1966 Clark wrote a laudatory biography of Price, *Crusader for Creation*, in which he downplayed the significance of Price's accusations that he had betrayed him by saying that Price had heard a distorted account of his views, which were merely attempts to update Price's model in the light of new knowledge.

EARLY DEBATES

Rimmer was not the only creationist debater in this era. W.B. Riley debated Z.P. Metcalf, a Carolina State College scientist, in 1922, and debated Edward Cantrell of Los Angeles before an audience of three thousand in 1925 (discussed in Shipley 1927:87, 351). John Roach Straton, pastor of Calvary Baptist Church in New York, became a frequent and notorious opponent of evolutionist advocate Henry Fairfield Osborn of the American Museum of Natural History. In 1924 he engaged in a celebrated series of debates with Charles Francis Potter, the well-known liberal Unitarian minister. The debate topics were the very principles of fundamentalism (infallibility of the Bible, the Virgin Birth, the Divinity of Christ); the second in the series, held at Carnegie Hall, was on creation. Straton, described by Marsden as being very close to the "ideal type" of fundamentalist moral reformer, savagely denounced liberalism and modernism and defended the fundamentalist doctrines. He was convinced that the Bible was "the foundation of all that is decent and right in our civilization," and that attacks on Scripture would result in total lawlessness and the end of civilization (Marsden 1980:161-3). *Evolution versus Creation* (1924) is the official record of the debate, but Straton also wrote his own account, *The Famous New York Fundamentalist-Modernist Debates: The Orthodox Side* (1925), in which he presented only his own arguments and not Potter's.

Those of us who deny the theory of evolution, therefore, have no antagonism to true science. We only object to having that which is merely an hypothesis proclaimed dogmatically as though it were really fact. [1924:30]

Straton argues that Darwin's *Origin* is based on speculation rather than established fact, and points out that Darwin used phrases indicating uncertainty such as "we may suppose" over 800 times (1924:51-2). This statistic has become a standard piece of creationist evidence, finding its way into dozens of books. Straton also appeals to "the most up-to-date voice of science itself"—in the person of George McCready Price. Straton enthusiastically praises Price's *New Geology*, "just off the press" (1924:72).

The next year saw another sensational debate series, this time on the West Coast. Maynard Shipley, president of the Science League of America and author of the anti-fundamentalist and anti-creationist book *The War on Modern Science* (1927), debated Francis Nichol and Alonzo Baker in San Francisco. Baker and Nichol were editors of the Seventh-day Adventist journal *Signs of the Times*. The debates are chronicled in *The San Francisco Debates on Evolution* (Shipley, Nichol and Baker 1925). The first proposition

debated concerned the evolution of the earth and of life. The topic of the second was whether the teaching of evolution ought to be forbidden in public schools. Nichol and Baker, members of a non-mainstream denomination, argued that both evolution as well as Genesis should be kept out of public schools, and made an eloquent appeal to democracy. Shipley, to his credit (this was when paleo-anthropology was still strongly influenced by Piltdown), noted the great significance of the just-discovered Taung (australopithecine) fossil from South Africa.

The year after this debate, Baker and Nichol came out with *Creation—Not Evolution* (1926), a book with a Foreword by George McCready Price. It included the standard creationist scientific objections to evolution, with many scientific references, but also openly proclaimed its religious basis; chapters included “Evolution’s Unsavory History,” “The Flood,” “Questions for Evolutionists to Answer,” “Evolution a Philosophy and a Religion,” “The Bible, the Crux of the Controversy,” and “Back to Creationism.” Baker and Nichol declare that the Bible “is not only not unscientific, but it is very scientific in its allusions” (1926:150). They then demonstrate various Bible-science propositions.

The Bible does not have to catch up with science; science must catch up with the Bible. The Bible has not had to correct its science in thirty-five hundred years; current science finds itself wrong about every thirty-five days. [1926:151]

Baker and Nichol also discuss (1926:46-7) the recently discovered pictograph from Hava Supai Canyon in Arizona which is allegedly of a dinosaur (which would refute the evolutionist time-scale); these drawings, and others interpreted similarly, have become widely-used creationist evidence. The authors use the probability argument in reference to biblical prophecy, which Stoner (1958) elaborated on, and which is now a great favorite. The probability that various “fulfilled predictions” in the Bible would all come true by chance is calculated to be one in a trillion (1926:164-5).

Despite this appeal to science, Baker and Nichol conclude by affirming that the greatest proof is “The Bible’s Transforming Power”—its power to change lives:

Has anyone ever heard a one-time thief and criminal say, “I once was an inmate of the state’s prison because of my repeated burglaries, but since reading Henry Fairfield Osborn’s ‘Men of the Old Stone Age,’ I have seen the error of my way, and all my desire for a dishonest life has been miraculously taken away”? [1926:171]

There were debates across the Atlantic as well, though the most important were written rather than oral exchanges. In *Science and the Supernatural* (Lunn and Haldane 1935), a series of 31 letters, Arnold Lunn debated J.B.S. Haldane, the famous British geneticist (and outspoken Marxist) who played a key role in bringing genetics into harmony with evolutionary theory in the 1930s (the neo-Darwinian Synthesis). This correspondence largely concerned evolution.

There is “no real evidence in support of Darwinism,” claimed Lunn, who also quoted many anti-Darwinian scientists. Haldane, for his part, observed that all people are affected by science in their lives, but that few of them understand the nature of scientific thought.

Lunn, author of several books on Alpine skiing, had earlier written two books, *The Revolt Against Reason* (1930) and *The Flight from Reason* (1931) arguing against

Darwinism. In the first, he quotes a Fellow of the Royal Society as expressing gratitude that Lunn is tackling the idol of evolution, since, he says, the professional scientists' "hands are tied." Those in authority, unfortunately, "regard Darwin as a Messiah"; "no jobs are going except to those who worship at the Darwin shrine." "Faith," taunts Lunn, "is the substance of fossils hoped for, the evidence of links unseen." A prime example of the "unreasonableness" of evolution is the lack of transitional forms:

[I]f Darwinism is true we should expect to find that the world was full of transitorial forms; but the world is full of fixed types, and the five thousand years of recorded history are eloquent in their witness, not to transitorial forms fading into each other, but to the stability of type. [Quoted in Field 1941; P. Zimmerman 1972; Graebner 1932]

Haldane also debated creationists Douglas Dewar and L. Merson Davies in a written exchange of six letters from each side published as *Is Evolution a Myth?* (Dewar, Davies, and Haldane 1949). Davies, a British lieutenant-colonel, was also a paleontologist, specializing in foraminifera, and a Fellow in several British scientific societies.

Dewar, the first secretary of the Evolution Protest Movement, and later its president, was a former auditor general of India. While in the civil service he became an expert on Indian birds. Dewar was an evolutionist until shortly before the founding of the EPM in 1932. In 1909 Dewar co-authored a book *The Making of Species* in which he said: "We would emphasize that it is not Darwinism we are attacking, but that which is erroneously called Neo-Darwinism. Neo-Darwinism is a pathological outgrowth on Darwinism." Field (1931) says that Theodore Roosevelt, an enthusiastic naturalist, specially commended this book. In 1931, however, Dewar published *Difficulties of the Evolution Theory*, and followed this with several more creationist books. In *Man: A Special Creation* (1936), he complained that evolution had captured the press, which refused to publish any attacks on evolution, or even the slightest criticism. *More Difficulties of the Evolution Theory* (1938) was a reply to Morley Davies' book *Evolution and Its Modern Critics*, itself a response to Dewar's 1931 book.

Dewar's *The Transformist Illusion* came out in 1957, the year he died, though he had written it in 1948 (adding some material in 1951). Modern creationists consider this book especially authoritative. Dewar packs the standard creation-science arguments with quotes and scientific references. There are no biblical references.

Dewar participated in another written debate against H.S. Shelton. Edited by Lunn, who also wrote the introduction, this was published in 1947 as *Is Evolution Proved?*. Lunn also debated the well-known Freethought advocate and anti-religious campaigner Joseph McCabe. A report of Dewar's side of this debate appeared as *A Challenge to Evolutionists* (1937). According to Field (1941), McCabe "threatened legal proceedings if his part of the debate were published." McCabe apparently also debated Price; a book titled *Is Evolution True?* (date unknown) lists both as authors.

THE LULL: 1940S-1950S

Another Seventh-day Adventist, Cyril Courville, refuted the "recapitulation theory" in a book of that title (1941) and in articles in journals such as the *Bulletin of Deluge Geology*. Courville was a neurology professor at Loma Linda University, and

founder and director of the Cajal Neuropathology Laboratory in Los Angeles; he has been described by his medical colleagues as the “world’s greatest neuropathologist.” The recapitulation theory is the idea, popularized by Darwin’s German advocate Haeckel, that “ontogeny repeats phylogeny”—that the developing embryo passes through the sequence of past evolutionary stages. Stated in this fashion, the theory is false and not even logical, but many naive evolutionists have appealed to it as proof of evolution. Creationists today rail against continued presentation of the “theory of recapitulation” in textbooks as evidence of ignorance or willful distortion, but these creationists usually do not distinguish between the “recapitulation theory” proper and more valid theories regarding the relationship of embryonic growth to evolutionary development.

Courville’s brother Donovan was also a physician and a specialist in embryology. He was an editor, with Price, of the now-defunct *Bulletin of Deluge Geology* and has more recently contributed to the *Creation Research Society Quarterly*. Later (1971), he published *The Exodus Problem and Its Ramifications*, a two-volume attempt to reconcile a Velikovskian historical scheme (with a similarly shortened Egyptian chronology) with Palestinian archeology; claiming, for instance, that Hyksos invaders of Egypt were the biblical Amalekites, and confirming the dispersion from Babel.

Another creationist physician in this period was Arthur Rendle-Short, professor of surgery at the University of Bristol, England. In *Modern Discovery and the Bible* (1942) he argues that “purpose and plan in nature” demonstrates that the universe, and living organisms, must have been created. “We must either accept the Bible doctrine that God created life, or go on making improbable speculations.” Rendle-Short allows for natural selection and limited evolution, but considers the evidence for common ancestry of all life “totally insufficient.” He cites many scientists opposed to either evolution or Darwinism. He also, in this and other works, expounds on the advanced medical knowledge contained in the Bible.

Rendle-Short was a Day-Age creationist. His son John, chairman of child health at Queensland University, Australia, was a theistic evolutionist until 1976, then became a strict creationist. His book *Man—Ape or Image: The Christian’s Dilemma* (1984) is largely a defense of young-earth creationism.

In 1945 the Dean of Moody Bible Institute, Wilbur Smith, wrote an eloquent defense of fundamentalism, including Bible-science and creationism, titled *Therefore, Stand: A Plea for a Vigorous Apologetic in the Present Crisis of Evangelical Christianity*. Smith was appalled that college was destroying the faith of so many young men in the Bible; the main purpose of his book was to defend Christianity against these attacks and ridicule. He asserts that “the facts of history, and the facts of science, are not on the side of agnosticism and atheism, but on the side of Christian truth, and that our faith is definitely not contradicted by facts, but is opposed only by the theories of men...” Smith agrees with arch-evolutionist T.H. Huxley that Darwin’s *Origin* is “Anti-Genesis”: evolution must try to challenge Genesis, says Smith, because the Bible contains the only religious account of creation which is also scientific.

If Genesis were scientifically inaccurate, Smith reasons, we could not trust it theologically. He quotes long passages from many scientists and academics on the harmony of Genesis and science. The fundamental importance of creationism is emphasized in the chapter “The Creation of the World by God the Apologetic for This Era of Scientific Emphasis.” “Destroy faith in the Genesis account of creation, and the

great structure of doctrinal truth built up through the ages, in the Word of God, is without foundation” (1945:277). Science cannot tell us about origins—but divine revelation can and does: creation *ex nihilo*. The Bible, however, does not tell us when the world was created: Smith is an old-earth creationist who advocates Day-Age creationism and is also favorable to Gap Theory creationism.

Dudley Whitney, a California farmer with a UC Berkeley degree in agricultural chemistry who edited and contributed to several agricultural journals, was also deacon of a charismatic church and contributed to several creationist journals. In 1946 he wrote *The Case for Creation*, published as a booklet series. In 1955 he published *The Face of the Deep: A Defense of Divine Creation*, and in 1961 *Genesis versus Evolution: The Problem of Creation and Atheistic Science*, the latter with a foreword by Harold Slusher of ICR (though this was more than a decade before the founding of ICR). Whitney argued strongly that science affirms a literal and recent creation. He dismisses descent from common ancestral forms as an absurdity. The fossil evidence shows that a single event—the Flood—restructured the earth’s surface; and if the Flood is true, then recent divine creation must be also. “Reason positively demands a decision in favor of divine creation, which is only another way of saying that common-sense science positively proves the fact of God.” Whitney argued that the Flood resulted in uplift of the continents; the fresh water runoff gradually accumulated and froze in the Arctic, eventually producing a sudden temperature drop about 2500 years ago—the Ice Age.

Wayne Frair, a creation-scientist who testified in the Arkansas trial, once admirably described Frank Lewis Marsh to me as a key figure in the development of modern creation science. Marsh, however, is little known outside creation-science circles. He earned a Ph.D. in botany from the University of Nebraska, then taught at Seventh-day Adventist colleges. He was one of the founders of the Creation Research Society in 1963, and the first chairman of the Geoscience Research Institute, the Adventist creation science institute now located at Loma Linda University. Marsh’s *Fundamentals of Biology* (1941) includes a statement of the tenets of special creation, which he says require less faith for belief than does evolution.

Marsh carried on a long correspondence with Theodosius Dobzhansky, a leading figure in the development of Neo-Darwinism and a theistic evolutionist. He later objected to a statement by Dobzhansky that Marsh was virtually the only scientist who still rejected evolution; Marsh claimed that all members of the American Scientific Affiliation did (see above), and that there were many creationists in universities who were forced to conceal their belief because of evolutionist intolerance. Knowledgeable about biology, he avoids many of the more egregious creationist mistakes and the sillier arguments.

Marsh stresses that variation has occurred within the originally-created Genesis “kinds.” Nature is not static; the medieval doctrine of special creation of each species, unfortunately retained by Agassiz, is mistaken. Man, though, is of course a separate creation, and is not descended from non-human primates—though human races have degenerated considerably since creation. Marsh coined the term “baramin” as the scientific equivalent of the originally created “kind” of Genesis (Hebrew: ‘*bara*’ =create; ‘*min*’ =kind).

In *Evolution, Creation and Science* (1944), Marsh continued his attempt to correct the obsolete version of creationism inherited from the medieval scholastics and to replace

it with a modern scientific version. Darwinism triumphed, he feels, because contemporary critics had only a distorted and scientifically inaccurate version of creationism with which to oppose it. “The only authority that the scientist can accept as a scientist is the authority of the facts of natural history,” Marsh insists—and he is convinced that creationism can be truly scientific. He also affirms, however, the scientific inerrancy of the Bible, and says that the Genesis creation account provides a totally satisfactory explanation of all phenomena.

Marsh continued to expand on his “baramin” concept in several later works, and to try to replace the obsolete, unscientific version of creationism with his modern, scientific creationism.

There is no conflict between true science, that is, natural facts, and the true Christian religion except as the student of this vitally important issue employs faulty technique. [1950:204]

The main reason why creation is talked down so generally is probably the fact that evolutionists do not take the time to read the Bible carefully for themselves. [1957:159]

Marsh’s last book was *Variation and Fixity in Nature* (1976), which is an updated and expanded discussion of the fixity of the created Genesis “kinds” and the variation (speciation) within kinds. “One of the most basic and well-demonstrated of biological principles is that of the limitation of variation” (1976:123).

The basic types, the created kinds, the baramins, stand so manifest and so clearly defined in nature by appearance and reproductive behavior as to constitute a delight to the student observant enough to fix his attention upon the level of the forest rather than upon the trees which constitute it. [1976:41]

Darwin discovered that species can change and thought that this disproved the Bible—and most people went along with his reasoning—but all of this speciation is really just change within baramins. Marsh tried to develop a scientific theory of baramins in which they are defined by the ability of variations within them to hybridize. Despite referring to baramins as “Genesis kinds” throughout, and referring to Creation Week and the Flood, other biblical references are much fewer in this book than in his previous books (this is in the era of “scientific creationism” as a non-religious alternative to evolution in schools). Marsh concludes by calling for both to be presented in schools:

The Bible knows nothing about organic evolution. It regards the origin of man by special creation as a historical fact... In view of the subjectivity of the evidence upon which a decision on the matter of origins must be made, creationism and evolution should be respected as alternate viewpoints. [1976:123]

Robert E.D. Clark is author of *Darwin: Before and After*, a book first published in 1948, which is still frequently cited by creationists. Clark has a Ph.D. in organic chemistry from Cambridge University and was active in the Inter-Varsity Christian Fellowship in England. He had written a couple of other works discussing the relationship of creation to evolution, and of materialism, rationalism and agnosticism to Christian faith (1958, 1951). *Darwin: Before and After* looked at the personal as well as scientific factors which led Darwin to write the *Origin*, and examined the harmful effects of Darwinism on society and on political thought.

Clark, an old-earth creationist, admits that fundamentalist creationist arguments are often “rubbish,” but he considers that such opposition is nevertheless valuable, since

evolution is indeed false (superficial change is possible, but evolution cannot “transform the fundamental structures”), and also considering the effects that evolution has had on society. In *The Universe: Plan or Accident?* (1949), Clark expresses his preference for old-earth creationism in a scientifically knowledgeable manner.

Herbert W. Armstrong is the only major creationist who began his anti-evolution activities in the 1920s and remained active up to the present decade (he was campaigning against evolution until his death in 1986). Through his Worldwide Church of God (founded in 1931), his journal *The Plain Truth* (founded in 1934), and his Ambassador College in Pasadena (founded in 1947), Armstrong has been attacking evolution for over fifty years. His son Garner Ted Armstrong, who became the voice of the Worldwide Church of God on radio and TV, also proselytized widely for creationism.

A book very influential among creationists appeared in 1951: *The Flood: In the Light of the Bible, Geology, and Archeology*, by Alfred M. Rehwinkel. It has undergone seventeen printings up to 1978. Rehwinkel was a theology professor at Concordia Theological Seminary in St. Louis, a Missouri Synod Lutheran institution.¹³ *The Flood* firmly endorses strict young-earth creationism and Flood Geology. Rehwinkel, who apparently had some university training in geology, was strongly influenced by Price. The book contains many scientific references and arguments, though each chapter ending is heavily and explicitly biblical.

The Flood, says Rehwinkel, is the greatest single event in earth history since the Creation.

Nothing comparable with it has happened since nor will happen until the final destruction of this universe in the fire of Judgment Day. The Flood marks the end of a world of transcendent beauty, created by God as a perfect abode for man, and the beginning of a new world, a mere shadowy replica of its original. In all recorded history there is no other event except the Fall which has had such a revolutionary effect upon the topography and conditions of this earth... No geologist, biologist, or student of history can afford to ignore this great catastrophe. [1951:xv]

To deny the worldwide Flood “means to question the infallibility of the Bible and that of Christ Himself.

Rehwinkel helped develop the creation-science model of the antediluvian earth. He did not invent this idea, but he tried to make it scientifically respectable; modern creation-scientists, led by Morris, have further added to it. Before the Flood, says Rehwinkel, the entire earth was uniformly mild, pleasant, and luxuriant, with shallow oceans only a fraction of their present size. The human population was large, widely distributed, and highly advanced. But the primary lesson of the Flood is moral and religious, not scientific. Rehwinkel presents the Flood as the “Prototype of the Final Judgment,” and concludes with the warning that the world today is as evil as in the days preceding the Flood catastrophe and that this Final Judgment is indeed imminent. The cause of the Flood was “not geological or cosmic, but ethical and moral.”

¹³ Rehwinkel was also a fervent anti-communist who considered Roosevelt and Churchill “contemptible warmongers, deceivers and fools.” Herman Otten, who knew Rehwinkel at Concordia, praises him (“‘Rip’ Rehwinkel—One of the First Revisionists”) in his address to the 1989 Institute for Historical Review Conference (Otten 1989:7). Otten, author of *Baal or God* and editor of the fundamentalist *Christian News* (formerly *Lutheran News*), has come out strongly in favor of “historical revisionism.” He denies that the Nazis systematically executed millions of Jews, calling the Holocaust one of the great “hoaxes” of our time, along with evolutionism.

A study of the Flood would therefore be incomplete without a reference to the moral depravity of that generation which was responsible for the destruction of the earth and without some application to the world of today. [1951:343]

Rehwinkel followed this, his major work, with a couple of other creationist books: *The Age of the Earth and Chronology of the Bible* (1967), and *The Wonders of Creation*. (1974). The latter exposes evolution as “absurd, impossible, and unscientific.” “Genesis is the only possible source for knowledge concerning the origin of the universe [since] science is limited to the here and now...”

Two other Missouri Synod Lutherans who actively supported creationism since the 1950s were John W. Klotz and Paul A. Zimmerman. Klotz received a Ph.D. in biology from the University of Pittsburgh and taught science at Concordia Senior College in Fort Wayne, Indiana. His 544-page biology textbook *Genes, Genesis, and Evolution* appeared in 1955 with a revised edition in 1970. A comprehensive treatment of biology (his training in biology is evident), especially genetics, the book includes biblical as well as scientific references. Klotz covers the evidences for evolution fairly thoroughly, but emphasizes the problems of evolution and clearly advocates creation. For instance, he has chapters or sections on the “species problem,” homology, vestigial organs, comparative physiology and biochemistry, embryology, mimicry, biogeography, paleontology, selection and isolation, genetics and mutation, human evolution and alleged hominid ancestors, and various theories and proposed mechanisms for evolution. He includes many of the standard creation-science arguments.

As Christians we know that in the Bible we do not have a theory which is subject to all sorts of changes, a theory which has come about as a result of the restricted reasoning abilities of human beings, but we have the inspired account of the only Being who was present at Creation...

... Certainly evolution is by no means proved, and it is not the only explanation for the organic diversity that we find. It is not unreasonable, then, to assume that the changes which have occurred have been finite and limited and that they have occurred within closed systems, the “kinds” of creation. [1970:519-520]

Klotz wrote several other creationist books, including one on the ecology crisis (1971). His most recent is *Studies in Creation* (1985), “*A General Introduction to the Creation/Evolution Debate.*” In this book, in addition to discussion of problems for evolution, Klotz concedes and discusses “Problems for the Creationist”—areas of creation-science which he admits are vulnerable to criticism. These include biogeography, extinction theories (post-Flood extinctions), and continental drift. Klotz admits that the evidence of biogeography does appear to fit evolution theory better than creationism, but he adds that there are problems with evolutionist theory also, which he discusses in one long final chapter.

While it is true that there are observations which fit better with the theory of evolution than they do with the theory of special creation, there are also areas...which fit better with the concept of special creation. One of these is the study of the evolution of man himself... Another...is the suggested mechanism for evolution... Still another...is the whole question of the complexity of living things. [1985:143]

Klotz, a young-earth creationist, admits that it is possible to reconcile an ancient earth with creationism, but argues that if we accept the historicity of Creation and the Fall it makes no sense to wait so long for the Redeemer.

Rev. Zimmerman, a chemist and a theologian, was president of Concordia Lutheran College in Ann Arbor, Michigan. He edited a 1959 book *Darwin, Evolution, and Creation*. The four authors included Klotz, Wilbert Rusch (described later in the Creation Research Society section), Zimmerman himself, and a theology professor at Concordia Teachers College in Nebraska. The authors acknowledge some limited evolution as opposed to fixity of species.

But there is much in evolutionary theory, in its accompanying philosophy, and in its denial of creation that we must reject and oppose. We hold that Christians must not confuse scientific fact, theory, and just plain scientific speculation. [1959:x]

God reveals Himself in both nature and the Bible. “Neither form of revelation can possibly contradict the other.” Scientific truth, however, is relative and changing; the Bible’s truth is absolute (though it may be misinterpreted).

Zimmerman edited a 1966 volume called *Essays from the Creationist Viewpoint*; the later, better known edition (1972) is titled *Creation, Evolution, and God’s Word*. Authors are Klotz, Zimmerman, Rusch, Walter Lammerts (described later in the Creation Research Society section), and Richard Korthals, a former astronautics professor at the Air Force Academy, then teaching physics at Concordia Junior College in Ann Arbor.

Zimmerman also wrote other creationist pamphlets, which insisted both on biblical inerrancy as well as that scientific evidence supported creationism. In one, *We Are the Offspring of God* (nd), he admits that he opposes evolution primarily for biblical and philosophical reasons rather than scientific ones: “It is indeed in the basic philosophy of evolution that we find the greatest objection to evolution.” Evolution claims that man has “risen from the swamp” and needs no Savior. This is bad science, says Zimmerman; but more importantly, it contradicts the Bible.

EARLY CREATIONIST ORGANIZATIONS

Although Rimmer was the only member of his Research Science Bureau, and wrote all the pamphlets and books that it published, the Bureau apparently did hold public meetings.

The Religion and Science Association was organized in 1935 by Dudley Whitney, assisted by George McCready Price and Byron Nelson. According to its constitution, its members “assert their disagreement with the principle of evolution,” which is based on the assumption that nature be interpreted solely in terms of natural processes. Members affirm that God “is not hampered by any so-called ‘laws’ of nature,” and that they believe the biblical account of definite acts of fiat creation by God (quoted in Morris 1984:112). Morris, in his *History of Modern Creationism*, laments the fact L. Allen Higley was recruited to be the Association’s first president. Higley was not a strict young-earth Flood Geology creationist like the others; he believed in Gap Theory creationism. Morris suggests that Higley was chosen because he had a legitimate science Ph.D. (they did not), and occupied a prestigious position as professor of chemistry and geology at Wheaton College in Illinois, a prominent Christian school. Higley cannot be accused of being soft on evolution. He describes the purpose of his 1940 book as “to disprove evolution and many other false speculations which dishonor the Creator...” (1940:6).

Evolution is purely speculation. It is pseudo-science, because it is directly opposed to the clearly observed facts and definitely established laws of science as well as directly opposed to the definite statements of the Bible. [1940:60]

Any theory which contradicts the Bible is “necessarily false.” “The Bible is the one foundation on which all true science must finally rest, because it is the one book of ultimate origins” (1940:10). Facts of science must be biblically standardized, says Higley, then classified, so that ultimate truth can be distinguished from passing speculation.

But Higley also refuted Flood Geology. Young-earth creationists, he argues, though they claim to be catastrophists in opposition to uniformitarian evolution, fail to realize that there was an even greater cataclysm before the Flood: the pre-Adamic destruction of the world of the Gap Theory.

The Religion and Science Association lasted only a couple of years. Morris attributes its demise to increasing numbers of old-earth creationists—especially from Wheaton—and the inevitable compromises that (according to Morris) this entails. Other active members included Harold Clark, Theodore Graebner, Leander Keyser, and Clarence Benson.

Theodore Graebner was a professor of philosophy and the New Testament at Concordia Theological Seminary in St. Louis (Missouri Synod Lutheran). In *Evolution: An Investigation and a Criticism* (1921), he vigorously denounced evolution as anti-Christian and unscientific. He admits his argument is “derived from the study of religion,” but he also employs many scientific quotes. “Christianity is justified even by reason,” wrote Graebner (1921:28), whereas “the evolutionary hypothesis is contradicted by the facts of religion, of history, and of natural science.” Evolution excludes divine fiat and revelation, supernaturalism, the immortality of the soul, and any absolute standard of morals; therefore it is false.

In *Essays on Evolution* (1925), Graebner refuted the arguments of the various scientific witnesses at the just-completed Scopes Trial. “Never has the hollowness of evolutionistic claims become so apparent,” he wrote, as in the statements of these scientists. (The scientific witnesses were not allowed to testify orally at the trial, but their statements were included in the trial record for use in an expected appeal.) Graebner denounced H.G. Wells’ 1921 *Outline of History* as evolutionist propaganda (it does strongly advocate evolution); also a 1916 *National Geographic* article by Theodore Roosevelt on prehistoric man (itself based on H.F. Osborn’s *Men of the Old Stone Age*), and many other works. He includes a letter Roosevelt wrote in response to Graebner’s complaints.

Graebner cites a pictograph from Hava Supai Canyon in Arizona which is allegedly a drawing of a dinosaur, claiming that this destroys the evolutionary time-scale. This drawing, and others similarly interpreted, have become widely-used creationist evidence. Baker and Nichol (1926) discussed it, and it is exactly this kind of evidence which is touted in modern creationist presentations such as the 1979 Films for Christ movie *The Great Dinosaur Mystery* and Paul Taylor’s accompanying book (1987).

God and the Cosmos: A Critical Analysis of Atheism, Materialism and Evolution (1943; originally 1932), Graebner’s major work, is larger an expansion of the same arguments. It is filled with quotes from anti-Darwinist and anti-evolutionist scientists, and Bible-believing scientists and writers. Graebner also recites the standard creation-

science arguments. As before, his primary argument is that while Christianity elevates humanity, evolution “unquestionably has degrading, demoralizing, brutalizing influences.” Evolution “stands as a denial of every essential Christian belief.” “The severest indictment that must be brought against the God-dishonoring theory of evolution is that it denies that there was a fall; therefore there is no need of the plan of redemption or of the Savior (1925:16). The rivalry between Christianity and Darwinism, he declares, “is at the bottom of all human affairs.”

Leander Keyser, another Missouri Synod Lutheran, wrote a strongly anti-evolutionist book *The Problem of Origins* (1925) (“Whence Came the Universe? Whence Came Life and Species? Whence Came Man? A Frank Discussion of the Doctrines of Evolution and Creation”).

Clarence Benson wrote creationist articles for *Moody Monthly*, many of which he incorporated into his book *The Earth—The Theatre of the Universe: And a Scientific and Scriptural Study of the Earth’s Place and Purpose in the Divine Program* (1938 (1929)), and a companion volume, *Immensity: God’s Greatness Seen in Creation* (1937), with a foreword by Higley. A later book, *The Greatness and Grace of God* (1953), contains “Conclusive Evidence that Refutes Evolution: arranged to be used as a textbook in Christian Evidences.”

In 1938, after the demise of the Religion and Science Association, the Society for the Study of Creation, the Deluge, and Related Sciences was founded under the leadership of Seventh-day Adventist Ben F. Allen. Commonly known as the Creation-Deluge Society, this creationist organization held meetings in Los Angeles and published the *Bulletin of Deluge Geology and Related Sciences*. George McCready Price was active in the Society, which was largely inspired by his Flood Geology, as was Cyril Courville, who served as president and wrote for the Bulletin.

In 1945 Ben Allen was deposed by an old-earth faction, and the Creation-Deluge Society was dissolved. Reorganized under a new name, the new society faded into oblivion within a few years. Allen denounced the old-earthers who took over the society in a paper quoted by Morris (1984:125-6) “The Original Society Illegally Supplanted and All Scriptural Standards Abandoned.”

The Christian Evidence League of Malverne, New York published booklets such as Whitney’s 1946 *Case for Creation* series and several pamphlets and books by Price (1949, 1956, 1971) and other creationists. It seems to have faded from sight at about the time that ICR was being founded (1972). There is a curious lack of continuity between these older groups and the new generation of creationists, however, despite a continuity of many creationist ideas and theories. I was in the ICR Library one day when an ICR graduate student from Malverne, New York discovered, to his evident surprise, that there had been a creationist organization in his own home town.

The Evolution Protest Movement in England has published hundreds of anti-evolutionist pamphlets, plus a few books, since it was founded by Bernard Acworth in 1932. The first president of the EPM was Sir John Fleming, the famous University of London physicist and electrical engineer. Fleming, who invented the electron tube, which made radio broadcast possible, wrote *Evolution or Creation?* in 1933. Evolution is so blatantly opposed to the Bible, he wrote, that it must be examined very critically; if creationism was false then the rest of the Bible must be false also.

Fleming's *Modern Anthropology versus Biblical Statements on Human Origin* was published by the Victoria Institute in 1935. The Victoria Institute, also called the Philosophical Society, was founded in 1865, and has published many creationist articles in its Transactions and journal. Fleming served as its president before the founding of the EPM. Sir Charles Marston, an archeologist who wrote *The Bible Is True* (1938 [1934]) about his digs at Jericho with Garstang, succeeded Fleming as EPM president. Douglas Dewar was the next president.

A.G. Tilney, a linguist and schoolmaster, wrote over a hundred EPM pamphlets, mostly in the 1950s and 1960s. C.E.A. Turner, who has a Ph.D. in chemistry and science education, also wrote several EPM pamphlets, including *A Jubilee of Witness for Creation Against Evolution* (1982), an account of fifty years of the Evolution Protest Movement.

An American branch of the EPM was established in the 1950s, under the leadership of James D. Bales. Bales, a professor at Harding College, Arkansas, has a Ph.D. from the University of California, and is the author of *The Genesis Account and a Scientific Test* (1975) and other creationist booklets. As American EPM Secretary, he wrote the Introduction to Dewar's *The Transformist Illusion*, published in Murfreesboro, Tennessee in 1957.

CHAPTER 3

THE MODERN CREATION-SCIENCE MOVEMENT HENRY MORRIS; THE AMERICAN SCIENTIFIC AFFILIATION

After the fireworks and public campaigns of the 1920s, fundamentalism, and with it anti-evolutionism, largely retreated from the public eye. It was, however, still there, “underground and actively germinating” (Morris 1984b:7). Except for their initial success with Prohibition, the major fundamentalist attempts to transform and regenerate society by direct legislation and public action failed. Fundamentalists withdrew from open confrontation with “the world” into their own enclaves and institutions. The anti-evolution legacy lingered on, however, as science textbooks shied away from forthright discussion (or even mention) of evolution. A study by Grabiner and Miller, “Effects of the Scopes Trial,” published in *Science* (1974) concluded that evolution was downgraded in textbooks following the trial, and did not regain its former emphasis until the 1960s.

An early turning point in the re-emergence of creationism into the larger arena, and the starting point of the modern creation-science movement, was the publication, in 1961, of Whitcomb and Morris’s book *The Genesis Flood: The Biblical Record and Its Scientific Implications*. Henry M. Morris is very widely acknowledged as the founding father and leading theoretician of modern creation-science.

Morris, born in 1918, was a theistic evolutionist in college at Rice Institute (now University) in Texas. A Southern Baptist, he was born again, and became an active proselytizer in the Gideons after college. In 1943 he became convinced of the truth of creationism largely by reading Rimmer and Price, after returning to Rice to teach civil engineering. Shortly before this, Morris was strongly influenced by hearing Irwin Moon’s “Sermons from Science” lecture demonstration. In 1944, Morris wrote a booklet *God’s Way of Salvation*.

That You Might Believe, Morris’s first book, was first published in 1946, when he was 28, just before he returned to graduate school. Most of the book concerns biblical and scientific creationism, and evidences for Flood Geology, as well as chapters espousing other examples of Bible-science. But Morris was not yet totally committed to strict young-earth creationism. The original edition allowed for Gap Theory creationism.

But even as the book was in press, Morris became convinced that the Bible clearly taught recent creation and a world-destroying Flood, and that science could be so interpreted. Morris credits a paper by Clifford Burdick, a Seventh-day Adventist who studied under Price, in particular with convincing him. Burdick’s paper was a critique of the radiometric dating methods which seemed to doom young-earth interpretations. Morris expunged this mention of the possibility of an old earth from later editions of his book. In ICR lectures, Morris remarks that this original edition is now—fortunately—unavailable.

A revised and expanded version of *That You Might Believe* was published in 1951 with the title *The Bible and Modern Science*. This version was written while Morris was working on his doctoral dissertation at the University of Minnesota (*A New Concept of Flow in Rough Conduits*, 1950). Morris says his “main motivation” in returning to

graduate school to study hydraulic engineering was to prove the validity of Flood Geology (Morris and Parker 1982; Morris 1984b:147). However, shortly after he made this decision, the first atomic bombs exploded. To Morris, it appeared that the prophesied end of the world was at hand, and it seemed pointless to continue in school when the Lord was about to return. At this moment, Morris met Arthur I. Brown, who, though also a fervent premillennialist, convinced Morris to stay in school because his scientific training would prove to be extremely valuable if the Lord chose to tarry (Morris 1984b:102). Morris says that before he returned to graduate school he had met W.B. Riley, founder of the World's Christian Fundamentals Association. Riley had also founded Northwestern Bible College, and was looking for a new president. Impressed with Morris's *That You Might Believe*, he wanted him for the job, but Morris had decided to return to graduate school. Billy Graham was later appointed president of Northwestern (Morris 1984b:58n). Morris also published another version of his book for Moody Bible Institute's popular Colportage Library series. The last edition under the original title was published in 1978. In one form or another, this book has been in print continuously for over forty years. In 1986, Morris published a revised edition of *The Bible and Modern Science* titled *Science and the Bible*. In all its various editions and incarnations, this book has been Morris's all-time best seller.

The Preface to *The Bible and Modern Science* opens with these words:

The purpose of this book, very frankly and without apology, is to win people to a genuine faith in Jesus Christ as the eternal Son of God and their personal Saviour, and to assist in strengthening the faith of those who have already received Him in this light. It is especially addressed to young people who are finding biblical Christianity under attack in many quarters in these days, nowhere more so than in the classes and textbooks of most of our colleges and universities, and even in the public schools.

Morris says (1984:100) that these words "could still apply to every book I have written since, even those which are strictly scientific in content."

Irwin Moon, whose "Sermons from Science" so impressed Morris, founded the American Scientific Affiliation in 1941 together with the president of Moody Bible Institute. Moody Bible Institute, in Chicago, was founded in 1886 by Dwight L. Moody, the famous evangelist. Though America had been periodically swept by great Revivals and religious Awakenings in the past, Moody was the first—and one of the greatest—of the new, urbanized revivalist preachers. Moody Bible Institute has remained strongly fundamentalist and creationist.

The American Scientific Affiliation (ASA) is an organization of Christian evangelical scientists: "A group of Christian scientific men devoting themselves to the task of reviewing, preparing, and distributing information on the authenticity, historicity, and scientific aspects of the Holy Scriptures in order that the faith of many in the Lord Jesus Christ may be firmly established" (Amer. Sci. Affil. 1948:3). ASA members have held varying positions regarding evolution, from strict creationism to theistic evolution. When it was founded, there was a dearth of active creationist organizations, and many creationists became members, expecting the ASA to remain a creationist bastion. Among the original ASA organizers were John Van Haitsma and Peter Stoner. Van Haitsma, professor of organic science at Calvin College (Christian Reformed) in Grand Rapids, Michigan, is the author of *The Supplanter Undeceived* (1941), a Bible-science book. Peter Stoner, a math professor at Pasadena City College (California), is the author of *Science Speaks: Scientific Proof of the Accuracy of the Bible* (1958; an earlier version

was titled *From Science to Souls*). Other presidents in the 1940s and '50s included Edwin Monsma, Russell Mixter, and Lawrence Kulp. Monsma, a biology professor at Calvin College, wrote *If Not Evolution, What Then?* (1959 [1954]), and supported strict creationism. Mixter, a zoologist and head of the Wheaton College science department, was a progressive creationist or theistic evolutionist (these two approaches overlap). He wrote *Creation and Evolution* (1953 [1949]), an ASA monograph, and *The Story of Creation* (1955), and edited the 1959 ASA volume *Evolution and Christian Thought Today*. Kulp was a geology professor at Columbia University. A theistic evolutionist, he vigorously opposed young-earth Flood Geology, and attacked it in the *Journal of the American Scientific Affiliation*.

Because ASA members held diverse views on evolution and espoused a variety of creationist theories (Stoner was a Day-Age creationist, e.g.), the ASA never demanded commitment to strict creationism, as the young-earth Flood Geology members had hoped for. In fact, as it grew larger, its membership grew less favorable to strict creationism, and increasingly favored theistic evolution. Of the eleven essays in *Modern Science and Christian Faith*, an early volume written by ASA members (1948; at this time there were only about 100 members), only one, by Tinkle and Lammerts, advocates strict creationism, though most of the others are clearly anti-evolutionist. Other authors include Frank Allen, a Canadian physics professor who earlier wrote *Evolution in the Balances* (1926), Stoner, and R.L. Harris, who later (1971) wrote a book on biblical anthropology. Creationists such as Arthur Custance and John Howitt were also early ASA members.

It was this increasing disapproval of strict creationism within the ASA which led to the founding of the Creation Research Society by dissident members in 1963. Walter E. Lammerts, one of these strict creationist ASA members, had earlier been involved with the Creation-Deluge Society. Lammerts, a Missouri Synod Lutheran, had a Ph.D. in genetics from Berkeley, and was a professor of horticulture at UCLA from 1940 to 1945, during the early years of the ASA. He was to become the first president of the Creation Research Society.

In 1945 Irwin Moon, the ASA founder, founded another organization, the Moody Institute of Science, which was associated with Moody Bible Institute but located in Santa Monica, California (it has since moved to Whittier, California). His associate director at Moody Institute of Science was F. Alton Everest, an electrical engineer and Santa Monica resident who edited the 1948 ASA volume. Moody Institute of Science (MIS) began to produce a series of films based on Moon's "Sermon from Science" lecture presentations. The first film in the MIS "Sermons from Science" series, *God of Creation*, appeared in 1945, the year MIS was founded. To date there are a couple of dozen "Sermons from Science" films, most of them now re-edited into half-hour versions suitable for TV. These MIS films have been aired on Christian television networks, and widely shown at corporations, military bases, World's Fairs, and Olympics. They have been shown in thousands of public schools as well. MIS claims to be the third largest producer of educational films in the U.S., and foreign language versions are shown in 132 countries in 27 languages.

Moon appears as host scientist in most of the films, which were "reviewed" (officially approved) by the ASA. The films are well made, and contain much good and interesting science. However, they are also strongly evangelistic, with an explicit

religious and biblical “moral” (usually limited to the end, where it can be edited off for public school audiences). Many of the films are strongly creationist, stressing that the design in nature must be the work of the Creator God, and cannot have arisen by chance. *Dust or Destiny* (1959) is one such film which appeals explicitly to Paley’s argument and refutes the notion that we are products of “blind, unintelligent impersonal force”; there is also a book version by Everest (1949). We are urged to weigh carefully the two opposed views—accident or plan—and warned that the accident-and-chance (i.e. naturalistic evolution) view allows for “no ultimate right and wrong.”

Other films in the “Sermons from Science” series include *Books and Sloths* (1955), which stresses the inerrancy and absolute scientific accuracy of the Bible and opposes “Godless materialism;” *The Professor and the Prophet* (1961), about archeological confirmation of biblical prophecies, and the probability calculations of Peter Stoner (the Professor) which prove the supernatural origin of these prophecies; *Signposts Aloft* (1967), which features astronaut John Glenn; *Empty Cities* (1973), which invokes ethnological data to claim that cultures do not evolve from savagery, but only degenerate; and *In the Beginning, God* (1975). These films are still being produced (McIver 1988g). Morris, however, says these are “not creationist films” (1984:143). This is because the MIS films, despite their strong anti-evolutionist and evangelical stance, do not argue for recent creation and Flood Geology.

The ASA currently has some 2,100 members. In 1986 the ASA published a booklet *Teaching Science in a Climate of Controversy: A View from the American Scientific Affiliation*, in response to the 1984 booklet from the National Academy of Sciences which strongly denounced creationism. Like the NAS booklet, the ASA distributed theirs to science teachers—40,000 in all—in every U.S. high school. The ASA urges a “non-dogmatic” approach, criticizing both young-earth creationism and purely naturalistic (non-theistic) evolution—such as defended by the NAS—as extreme and dogmatic positions. The booklet clearly favors old-earth creationism (though the majority of ASA members can probably be described as theistic evolutionists). Of fourteen books recommended in the Appendix, most are old-earth creationist. (One book was dropped from the list for the second printing, and a few sentences of text were rewritten to clarify that the authors objected to only part of the NAS booklet [Hearn 1987:17].

This recent ASA booklet drew a storm of protest from some evolutionists, who interpreted ASA’s declared middle position, and its criticism of both ‘strict’ evolutionism and ‘strict’ creationism, as merely a more subtle and insidious form of creationism and religious proselytizing. The ASA also has in the works a TV series in response to Carl Sagan’s “Cosmos” (Hefley 1986:50). Harvard astronomer and historian of science Owen Gingerich (cited in Faulstich as confirming the astronomical data used by Faulstich to prove recent creationist chronology), who was an adviser for the “Cosmos” series, is scheduled to host the ASA series. Gingerich, an active ASA member and an editor of the *JASA*, does not oppose evolution. Gingerich has a chapter in Roland Frye’s book *Is God a Creationist?: The Religious Case Against Creation-Science* (1983), showing that modern astronomy and cosmogony are totally at odds with strict creationism but still allows for created design and God.

WHITCOMB AND MORRIS’S *GENESIS FLOOD*

In his *History*, Morris devotes a full chapter to the genesis and effects of *The Genesis Flood*. Throughout the 1950s, while on the civil engineering faculty at the University of Southwestern Louisiana and later at Virginia Polytechnic Institute (VPI, or Virginia Tech), Morris was working on a book about Flood Geology he planned to call *The Creation and Destruction of the World*. He showed chapter drafts to John C. Whitcomb, then pursuing graduate study at Grace Theological Seminary in Winona Lake, Indiana (he had been born again while an undergraduate at Princeton University). Whitcomb decided to do his doctoral thesis on Noah's Flood, which the Grace Brethren faculty approved. He received his Th.D. in 1957, and his thesis was provisionally accepted for publication by Moody Press. At this point Morris and Whitcomb decided to combine their efforts. *The Genesis Flood* was the result. Chapters 1-4 are by Whitcomb; Morris wrote the Introduction and chapters 5-7. A geology professor at Morris's Univ. of Southwestern Louisiana wrote the Foreword. The main text was finished in 1959, the Centennial year of Darwin's *Origin of Species*; Morris points out the significance and symbolism of this timing.

Moody Press, meanwhile, became nervous about publishing such a rigidly literalist book. Rousas Rushdoony, a conservative Presbyterian minister who had reviewed the manuscript, easily convinced his friend Charles Craig, the owner of Presbyterian and Reformed publishers, to publish it.

The Genesis Flood is in large part a updated restatement of George McCready Price's Flood Geology. But whereas Price made little headway outside of Adventist and narrow fundamentalist circles, *The Genesis Flood* became the catalyst for the modern "scientific" creationist movement and the great resurgence of public support for creationism. 518 pages long, *The Genesis Flood* appears extremely scientific and scholarly. It is packed with scientific references and footnotes.

It also resolutely and uncompromisingly insists on strict creationism. "A real understanding of origins requires, as we have repeatedly emphasized, divine revelation." Thus only the Bible, and not science, can tell us about creation, and any historical science must be based, therefore, on the primary facts of the Creation, the Fall, and the Flood.

The geologic record may provide much valuable information concerning earth history subsequent to the finished Creation..., but it can give no information as to the processes or sequences employed by God during the Creation, since God has plainly said that those processes no longer operate—a fact which is thoroughly verified by the two universal laws of thermodynamics! [1961:224]

Whitcomb and Morris note that the Bible speaks of four other epochs besides the Flood which produced some of the world's geological strata: the initial creation itself of the world, in which the basement rock and some of the other Precambrian rock was formed; the third day of creation, when the land was separated from the seas; some geological activity as a result of the pre-Flood Water Canopy which surrounded the earth; and some post-Flood effects. But they insist that all the major geological formations and virtually all fossil-bearing strata were formed by the biblical Flood.

The rains which caused the Flood came from the collapse of the Water Canopy which surrounded the pre-Flood earth. But the bulk of the Flood waters came from internal sources—the rupturing of the "fountains of the deep." The fossil sequence results from several processes: hydrodynamic sorting of organisms and sediments which

produces various different types of strata with different fossils in each (heavier, denser ones settling first); differential mobility of organisms fleeing the rising Flood waters (swifter and more active animals escaping to higher levels); and the layering of some strata due to great currents sweeping back and forth during the Flood, depositing first one type of sediment, then another from a different source. Oil and coal were formed from plant remains buried by the Flood.

Whitcomb and Morris allow for some gaps in the biblical genealogies, so that a precise dating of Creation and the Flood cannot be reckoned directly from the Bible, but they assert that the Flood cannot have occurred more than five thousand years before Abraham.

Chapter IV, “Uniformitarianism and the Flood: A Study of Attempted Harmonizations,” is a discussion of many of the older creationist and Flood theories. More so than in Morris’s other books (with the exception of his History), this chapter reminds us that Flood Geology is not a new discovery, but a venerable (and discarded) tradition. Whitcomb and Morris criticize, in detail, all “concordist” theories which tried to reconcile scientific findings with biblical inerrancy. All such attempted compromises betray the only correct interpretation of the Bible, which plainly teaches recent, literal creation and a Flood which profoundly altered the earth. As Morris expressed it later (1984:329b):

The Bible clearly teaches the special creation of all things in six literal days (e.g., Exodus 20:8-11) and a worldwide cataclysmic destruction by the flood (e.g., II Peter 3:3-6), and it is only special pleading and strained exegesis that can force any other meaning into the Biblical record. This teaching is so transparently clear and definite in Scripture that it seems redundant even to have to discuss it. It ought to be considered a “given,” like the deity of Christ, for all who profess to be Bible-believing Christians.

Whitcomb and Morris praise their predecessors who believed in a worldwide Flood as the key event in geology and earth history: Burnet, Woodward, Whiston, and later Flood champions such as Byron Nelson, and Rehwinkel (Price gets favorable mentions, but only in passing). They castigate compromisers such as Cuvier (for introducing the notion of other catastrophes in addition to Noah’s Flood), Buckland, Pye Smith and other “tranquil” or “local” Flood advocates, and, of course, all uniformitarian evolutionists. *The Genesis Flood* remains a rich source of references, theological and scientific (and both), on attitudes and theories regarding the Flood through the centuries.

Many of the ideas in *The Genesis Flood* predate even Price’s twentieth-century scientific version. John Williams, for instance, who surveyed and described British coal strata, developed at length the theory that coal was formed by the Deluge. In *The Natural History of the Mineral Kingdom* (1789), he argued that coal was formed from antediluvian timber. Most of the earth was covered by a luxuriant growth of trees before the Flood—enough to account for all present coal deposits. Vast amounts of timber floated on the turbulent chaos of the Flood waters, turning mushy during the year of the Flood. Then it was deposited on the ocean bottom, often in finely laminated strata alternating with other deposits (such as Williams observed in his British coal seams). These many fine strata resulted from the great tidal currents of the Flood, “several miles in perpendicular depth,” which swept back and forth, at times exposing dry land in between the currents. Williams emphasizes that the various strata are “promiscuously” arranged with respect to gravitational sorting—that is, “hydrodynamic sorting” by itself cannot account for the various alternating layers—and thus must be the result of

enormous successive streams or currents of Flood waters. Whitcomb and Morris do not mention Williams, though their Flood Geology uses many of the same ideas. They do, however, pay homage to Byron Nelson, who devotes an entire chapter to Williams's theory.

Much of the success of *The Genesis Flood* can be traced to social and cultural factors. The launching of the Soviet Sputnik in 1957 triggered alarm in this country about the quality of American science and, consequently, the quality of science education. New and more ambitious science curricula were a direct result. The Biological Sciences Curriculum Study (BSCS), consisting of textbooks emphasizing evolution (organized about the time of the Darwin Centennial in 1959), was part of a larger National Science Foundation project begun in 1957. As Nelkin points out (1982), these federally-funded textbooks, and others which also emphasized evolution (especially the MACOS social science series), aroused widespread fear amongst fundamentalists in particular about federal control of education.

THE CREATION RESEARCH SOCIETY

At any rate, *The Genesis Flood* sparked a revival of interest in creationism. Creationism now seemed far more respectable and scientific, and far less easy to dismiss. Those strict creationist ASA members who had been disappointed and alarmed at the drift away from creationism by other ASA members and creeping evolutionism within the organization were heartened by the appearance of Whitcomb and Morris's book. Walter Lammerts, William Tinkle, Frank Marsh, R.L. Harris, Edwin Monsma, Duane Gish, John Grebe, Wilbert Rusch, John Klotz, and Morris himself formed a committee (the "Team of Ten") and began to plan, in 1961, for a new organization dedicated to strict creationism, either as a distinct group within the ASA or (if ASA reaction was negative) as an independent Society. Members of this committee met at an ASA meeting in 1963, and reconvened after the meeting at Grebe's house in Michigan. The Creation Research Society was born at these meetings. (Morris, interestingly, was unable to attend these meetings; he had gotten an NSF grant to attend a water resources conference.)

It was Walter Lammerts, the former UCLA horticulturist, who largely initiated these moves which led to the formation of the new Society. In "The Creationist Movement in the United States: A Personal Account" (1974), Lammerts describes his own involvement with creationism as well as the movement in general. Lammerts entered college at the University of California (at Berkeley—this was before UCLA was founded) in 1923, where he was exposed to evolution for the first time. He discovered Price's *New Geology* at the university library, and began a study of scientific criticisms of evolution. Lammerts was asked to join the ASA in 1943 by F.A. Everest, who he said assured him that the ASA would be anti-evolutionary (Lammerts 1974:54). He was also involved with the defunct Creation-Deluge Society. But after leaving UCLA in 1945 to work as a plant breeder in private business, his interest in creationism waned, until rekindled by reading Rehwinkel's book, and later Whitcomb and Morris's. Lammerts was appointed the first president of the Creation Research Society as well as editor of its journal, the *Creation Research Society Quarterly*.

Lammerts is a highly respected plant breeder and geneticist. His new rose breeds have won the highest awards. (A recent article on rose breeding in *Discover*, for

instance, features Lammerts; it contains no mention of his creationism [Mohs 1987]). He attributed these practical results to his belief in the creation model.¹⁴ For instance, he compared a UC Davis cherry breeding program, based on evolutionist assumptions, with his own, much more rapid peach breeding program at Armstrong Nurseries.

My success in so rapidly breeding these varieties was not due to any particular genius on my part but rather to the fact that I was not burdened by the evolutionary approach and instead used a dynamic creative cross breeding approach to the problem, ignoring all supposed phylogenetic evolutionary considerations. Accordingly I was able to combine in one variety desirable characteristics from widely divergent ones in a few years of intensive cross breeding and selection...

It is time that state agricultural colleges reevaluate their objectives, and realize that dedication to evolution concepts have a deadening effect on research progress. [Lammerts 1965:8-9]

Lammerts was succeeded as CRS president by Morris himself. Of the other members of the original “Team of Ten,” Marsh, Klotz, and Monsma have already been discussed. William Tinkle was, along with Lammerts, one of the chief initiators of the CRS. He had a zoology Ph.D. from Ohio State University, and was a biology professor at Taylor University, a Christian school in Indiana. He wrote a “Christian” textbook, *Fundamentals of Zoology*, and other creationist books. *Heredity: A Study of Science and the Bible* (1970), which has a foreword by John Moore and an introduction by Lammerts, is largely a presentation of standard genetics and Mendelian inheritance, but Tinkle denies that genetics is a vehicle for evolution.

Genetics itself does not teach Christianity nor any other form of religion but it allows plenty of room for Christianity and does not clamor for change. It does not supply facts to indicate a natural upward evolution of the race but indicates a horizontal tendency for the most part with loss when mutation occurs. [1970:175]

Mendel’s discoveries were ignored, Tinkle says, because of enthusiasm for Darwin. Tinkle claims that humans were created with innate intelligence: “We believe that Adam and Eve were real persons with intelligence quotients of at least 100” (1970:104).

R. Laird Harris was professor of Old Testament at Covenant Theological Seminary in St. Louis. He also had a B.S. in chemical engineering, and is listed as an “archeologist” in the earliest issues of the *CRSQ* (he wrote an article in the first issue on the Dead Sea Scrolls as supporting fundamentalist belief [1964]). Harris did not last long as a CRS director. Unlike the others, he believed in an old earth. He resisted Morris’s attempt in 1965 to adopt a stricter creationist doctrinal statement for the CRS—one which would specify (instead of just implying) recent creation. After 1965 Harris was no longer listed as a member of the CRS Board of Directors.

Harris later changed his mind about the Flood, too, which, according to the CRS statement of belief, was “worldwide.” In *Man—God’s Eternal Creation: Old Testament Teaching on Man and His Culture*, he suggests the Flood was not global, though it did destroy all humans not in the Ark (1971:85-7). This book, which is a kind of biblical-

¹⁴ Creationism has changed in this respect. Shipley (1927:318) reported that a gladiolus breeder was kicked out of his fundamentalist church for interfering with the divine order of species by his hybridization experiments producing new varieties. Sophisticated creation-scientists no longer assume the fixity of species, and now argue that the created “kinds” are of larger taxa, which permits of considerable variation within “kinds.”

anthropological study of Old Testament life, also discredits evolution and affirms the special creation of man.

John Grebe was director of nuclear and basic research at Dow Chemical Company. He held a hundred patents, and was instrumental in development of styrofoam, Saran, synthetic rubber, and other petrochemical products. Grebe wrote an article for Vol. 1., No. 1 of the *Creation Research Society Quarterly*, "Science Is Now Proving the Genesis Creation Account Is Correct" (1964), and argued that the structure of DNA proved evolution was statistically impossible a few years later (1967). In 1969, in testimony before the Texas Board of Education, he offered \$1000 for any proof of evolution (Gabler and Gabler 1985:B-7). Grebe contributed a chapter to the 1966 book *Behind the Dim Unknown*, a volume in which 26 scientists prove the power of God. In it he suggests that a reversal of the earth's magnetic field caused the Flood, since this field continuously creates water. The Flood also disrupted the carbon-14 ratio; thus, all C-14 dates may have to be drastically revised to fit within a few thousand years after the Flood. "How wonderful it would be if further data from space and the orientation of magnetite crystals in viscous lava flows would continue to clarify the details of the biblical creation and flood accounts!" (J. Monsma, ed. 1966:187). (Other contributors to this volume include Gish, Burdick, Slusher, George Howe, and Russell Artist.)

Wilbert H. Rusch, Sr., a Missouri Synod Lutheran, has a M.S. in biology from the University of Michigan, and was professor of biology, geology, science and math at Concordia College in Michigan. A Missouri Synod Lutheran, he contributed chapters to Zimmerman's creationist volumes (1959, 1966). He is the only person who has served continuously as an active CRS officer from its inception in 1963 into the 1980s. In 1983 he became president of CRS.

Duane Gish, the remaining "Team of Ten" member, is, with Henry Morris, the creationist with the greatest public recognition. Gish has a B.S. chemistry from UCLA and a Ph.D. in biochemistry from Berkeley. He was working on the research staff of Upjohn Co. in Michigan when the CRS was formed. Gish has been second in command at Morris's Institute for Creation Research ever since its founding, and is the most famous creation-science debater. Gish says he converted to creationism after reading a booklet by John Howitt, *Evolution: "Science Falsely So-called"*.¹⁵

The CRS "Statement of Belief" has achieved considerable notoriety: it is frequently quoted by anti-evolutionists to prove that creation-"science" is actually religion, and that creationists are dogmatic believers in supernatural miracles. The Statement of Belief has a more pragmatic purpose than as a mere affirmation of fundamentalist belief. The CRS founders, especially Morris, were determined that their new creationist society not be allowed to slip into compromise on fundamental doctrinal matters. This required the explicit spelling out of doctrine in creedal form and requiring that all members subscribe to these.

The old Religion and Science Association, and the Creation-Deluge Society—both founded by strict creationists, believers in recent creation and Flood Geology—had sunk into oblivion because they were taken over by old-earth compromisers. Many of the

¹⁵ 205,000 copies of Howitt's booklet were already in circulation by the time of the 1981 edition. Date of the original is not listed, nor is any author [Howitt] credited. Howitt was a Canadian psychiatrist and hospital superintendent. He wrote several popular anti-evolution booklets, for EPM and the Toronto-based International Christian Crusade [1964, 1976]).

early ASA members were strict creationists who thought that that organization would remain dedicated to strict creationism, and they were sorely disappointed to see its membership increasingly dominated by old-earthers and even theistic evolutionists. This is what the Statement of Belief is designed to prevent. As Morris put it when he left the CRS presidency to devote himself to his new Institute for Creation Research:

We must, by all means, continue to resist all efforts to dilute our commitment to a recent literal creation and a worldwide flood, as required by sound Biblical exegesis. Uncertainty on these points at ASA's inception...was the direct cause of that organization's rapid drift into theistic evolution and the social gospel. [1985:198-9]

The Statement of Belief was the first and "most important" order of business when the CRS was organized. Significantly, the CRS constitution forbids any change in this doctrinal statement. Here is Creation Research Society Statement of Belief, printed in the first issue of the CRSQ (1964) and every issue since:

1. The Bible is the written Word of God, and because we believe it to be inspired throughout, all of its assertions are historically and scientifically true in all of the original autographs. To the student of nature, this means that the account of origins in Genesis is a factual presentation of simple historical truths.
2. All basic types of living things, including man, were made by direct creative acts of God during Creation Week as described in Genesis. Whatever biological changes have occurred since Creation have accomplished only changes within the original created kinds.
3. The great Flood described in Genesis, commonly referred to as the Noachian Deluge, was an historical event, worldwide in its extent and impact.
4. Finally, we are an organization of Christian men of science, who accept Jesus Christ as our Lord and Savior. The account of the special creation of Adam and Eve as one man and one woman, and their subsequent Fall into sin, is the basis of our belief in the necessity of a Savior for all mankind. Therefore, salvation can come only through accepting Jesus Christ as our Savior.

The last tenet, of course, excludes non-Christians. Rusch wanted the CRS to be open to all creationists, even Jewish and Islamic, and therefore opposed the adoption of this tenet, but he was overruled. (Moshe Tropic, a Jewish creationist, has published in the *CRSQ*, and articles by old-earth creationists appear occasionally, but their articles do not argue these points.)

As already mentioned, Morris felt that the CRS Statement was not explicit enough, in that it did not unambiguously specify recent *ex nihilo* creation and insist upon Flood Geology (though he admits that the Statement certainly implies such a strict interpretation). Morris set up an even stricter doctrinal statement when he founded his creationist college, and stricter still for the Institute for Creation Research.

The Creation Research Society was founded as a research and publishing organization, with the primary function of publishing a creationist journal. The first issue of the *Creation Research Society Quarterly* was the *1964 Annual* (vol. 1, no. 1 followed later that year). In the debut issue, Lammerts announced the goal of CRS as the "complete re-evaluation of science from the theistic viewpoint" (1964:2; also reprinted in Lammerts, ed., 1973:2). Authors in that first issue were Klotz, Harris, Zimmerman, Morris, Slusher, Marsh, Tinkle, Lammerts, John N. Moore, George F. Howe, Clifford Burdick, and Thomas G. Barnes. Moore has an M.S. in biology and an Ed.D. from Michigan State University, where he was professor of natural science. Moore took a sabbatical from Michigan State, staying at Morris's creationist college, where he wrote

How to Teach Origins (Without ACLU Interference) (1983). This is a detailed manual in response to the question, “How do you teach creation in a public educational institution?”

It is fully legal and constitutional to teach scientific creationism in any school, whether it be public or parochial, secular or sectarian. Because of all that has gone before in previous chapters, the science teacher should no longer have any serious doubt that the creation model is a viable, scientifically based alternative to the evolution model about first origins. [1983:283]

It is educationally unsound and unconstitutional to promote evolution in the schools, Moore argues; exclusive teaching of evolution is compulsory indoctrination in the state-endorsed world-view.

George Howe has a Ph.D in botany from Ohio State University, and taught natural science at Westmont College in Santa Barbara, California. Later, finding Westmont (a Christian school) too liberal, he moved to head the science department at Los Angeles Baptist College. Howe has remained on the editorial board of the *CRSQ* from the first issue to the present.

Clifford Burdick is a consulting geologist and an early follower of Price’s Flood Geology. He has an M.S. from the University of Wisconsin, and a Ph.D. from something called either the University of Physical Science in Arizona (Burdick 1974:vi) or the University of Phoenix (in an unpublished paper by Burdick, “Documentation of Discrimination Against Creationist Students,” quoted in Bergman 1984:30). He claims earlier to have been denied a Ph.D. in geology, for which he completed all requirements, by the University of Arizona, due to his creationist beliefs. Burdick converted to Seventh-day Adventism from a Baptist group (Lang and Lang 1984:57). While a member of the Creation-Deluge Society in the early 1940s, Burdick was sent to investigate the supposed human footprints found among dinosaur tracks in the Paluxy River. It was largely Burdick’s work which led to the sensational creationist claims about these Paluxy “manprints.”

Burdick also wrote *Canyon of Canyons* (1974), a Flood Geology explanation of the Grand Canyon. In 1964 Burdick was hired to analyze pollen samples collected by University of Arizona students in the Grand Canyon. His analysis showed that fossil pollen was present even in Cambrian and Precambrian strata (strata which far predate the evolution of flowering plants). Lammerts got similar results when he had some of Burdick’s samples analyzed at a UC Berkeley lab. Burdick published these findings as evidence against evolution in the *CRSQ*, but others dismissed them as resulting from contamination of the samples. Burdick is also frequently cited for his geological surveys of Mt. Ararat, which prove that Ararat was once submerged under the Flood waters (e.g. LaHaye and Morris 1976:7-10), and for his investigations of overthrust formations—Many of which he contends are not true overthrusts, thus proving the geological column wrong.

Thomas G. Barnes has an M.S. from Brown University and was a professor of physics at the University of Texas at El Paso, where he directed the Schellenger Research Lab. Later he became dean of graduate study and research at Morris’s Institute for Creation Research.

The first major project of the CRS, besides its primary and ongoing work of publishing its *Quarterly*, was preparation of a creationist-oriented high school biology textbook. Barnes was appointed chairman of the CRS Textbook Committee, and work

began in 1965. *Biology: A Search for Order in Complexity*, was first published in 1971. Overall editors were John Moore and Harold Slusher. The CRS textbook was rejected by fifteen leading high school publishers. It was finally published by Zondervan, a major Christian publisher, of which Moore is science editor. The primary authors of the CRS book were Tinkle and Rita Ward; other authors include Howe, Klotz, Lammerts, Morris, Gish, Marsh, Rusch, Douglas Dean, Bolton Davidheiser, J.W. Sears, Russell Artist, Clyde McCone, and Larry Butler.

Rita Ward was not a CRS board member, but taught high school biology near Barnes in El Paso. A graduate of Abilene Christian College, she apparently belongs to the Church of Christ. Ward earlier wrote *The Bible Versus Evolution for Young People* (1949), and *In the Beginning: A Study of Creation versus Evolution for Young People* (1967), for which she acknowledges assistance from Tinkle and Dean. Interestingly, although she presents Flood Geology in this book along with other creation-science arguments, she admits that Gap Theory (old-earth) creationism may be correct.

The Bible is God's revealed word and therefore is perfect... If man evolved, there is no point at which he became in the image of God or received a soul... If life evolved there would be no truth to the Bible. [1967:94,97]

Douglas Dean is a biology professor at Pepperdine College in Malibu, California, a school affiliated with the Church of Christ.

Bolton Davidheiser graduated from Swarthmore College and got a Ph.D. in zoology from Johns Hopkins. He was a biology professor at Westmont College; then, finding Westmont too liberal, at Biola College (formerly Bible Institute of Los Angeles) in La Mirada. Davidheiser came from a Mennonite family, but says he did not accept Christ until after his Ph.D. He wrote a highly regarded book, *Evolution and Christian Faith* (1969). Although he emphasizes throughout the book that acceptance of evolution results in rejection of the Bible and Christianity, his knowledge of biology is evident (especially in contrast to most other creationist works), and he presents generally accurate accounts of attitudes and statements of many evolutionists and theologians. In a long section on the history of evolutionist thought, he describes the reaction of the ASA to evolution. In another section he quotes the conflicting answers given by many evolutionists on whether or not humans evolved from apes and/or monkeys. (The answers are contradictory because some evolutionists, largely in order to deflate the hostile attitude that attribution of ape or monkey ancestry often provokes, deny that humans descended from apes or monkeys by arguing that monkeys and apes themselves evolved from our common ancestors.)

Jack Wood Sears has a Ph.D from the University of Texas, was a tour lecturer for the American Chemical Society, and now heads the biology department at Harding College in Searcey, Arkansas, a Church of Christ school. Sears wrote *Conflict and Harmony in Science and the Bible* (1969), which concerns the theme "Science, the Bible, and Evolution," and is based on a lecture he gave to students at the University of Mississippi. He contrasts the immutable truth of the Bible with the changing theories of science, and sounds a reasoned warning against "scientism." Though he notes problems with radiometric dating, he is willing to provisionally assume that the standard geological dates are correct (odd, for a CRS author).

Russell Artist, another Church of Christ member, has a Ph.D. in biology and headed the biology department at David Lipscomb College in Tennessee. He wrote a chapter in J. Monsma's 1966 *Behind the Dim Unknown*. Bert Thompson dedicated his strongly creationist *History of Evolutionary Thought* (1981) to Artist.

R. Clyde McCone has a Ph.D. in anthropology and sociology from Michigan State University and has long been a professor of cultural anthropology at California State University at Long Beach. He wrote several chapters in the *Symposium on Creation* volumes on the topics "The Origins of Civilization" and "Evolutionary Time: A Moral Issue" (Morris et al. 1968; Patten, ed., 1972). A later book, *Culture and Controversy* (1978) concerns "speaking in tongues": McCone disputes the modern Pentecostal assumption that Christ's disciples spoke in unknown languages at Pentecost, arguing instead that they spoke in vernacular languages (Aramaic, Greek and Latin) rather than in the sacred Hebrew (Christ had freed them from the Jewish traditions in order to bear witness to Christ).

Larry Butler has a Ph.D in biochemistry from UCLA, where he also did post-doctoral work. While at UCLA he also taught at Los Angeles Baptist College. He is now a professor of biochemistry at Purdue, where he went in 1966.

Most of *Biology: A Search for Order in Complexity* is standard high school biology material, but it is interspersed with strongly anti-evolutionist chapters and sections. It scoffs at evolutionary explanations as inadequate, and presents creation-science as an equally scientific and in fact superior alternative. A major unit on "Theories of Biological Change" emphasizes the standard creation-science arguments: evidence for a young earth, the "hypothetical" nature of the geological column, the many "wrong-order" fossils (including the Paluxy "manprints" and the Meister trilobite-and-human fossil), the sudden appearance and persistence of life-forms, genetic variation within "kinds" as opposed to unlimited evolution, sections presenting "Failures of Darwinian Theory" and the many "Problems for Evolutionists." The textbook suggests that Flood Geology is "superior because it conforms to the principles of hydrodynamics," and says that evolutionists reject young-earth dating methods because they require long ages for the "doctrine of evolution, which has no observable evidential basis." It criticizes fossil hominids as products of wishful thinking, and teaches that "mechanistic" theories of evolutionists cannot explain our consciences or allow for moral behavior.

[T]he creation model is a framework of interpretation and correlation which is at least as satisfactory as the evolution model. However, the two laws of thermodynamics, the apparent stability of the basic 'kinds,' the existence of great gaps between the kinds, the deteriorative nature of mutations, and the catastrophic nature of the worldwide fossil-bearing formations all may be correlated far more easily with the creation model than with the evolution model. [1974:xxii]

The CRS textbook was approved by many state textbook committees, but was declared unconstitutional by the Indiana Supreme Court in 1977 in *Hendren v. Campbell*. The CRS Board planned a new edition which would be less overtly religious in order to circumvent this ruling (the 1971 and 1974 editions openly endorse the Book of Genesis and Noah's Flood), but this proposed revision ran into trouble. Zondervan declined to publish a new edition, so Creation-Life Publishers, the ICR affiliate, offered to take it, and also offered Morris's ICR staff to do the revising. But some CRS members felt that ICR should not take the project away from CRS, and Rusch tried to get a Lutheran committee to revise it for publication by Mott Media (Morris 1984b:199-200).

THE BIBLE-SCIENCE ASSOCIATION

The Bible-Science Association, another major creationist organization, began at about the same time as the Creation Research Society. The BSA was founded by Rev. Walter Lang, a Missouri Synod Lutheran, who until recently has been its director and dominant figure. Lang graduated from Concordia Seminary in St. Louis, and was pastoring a church in Caldwell, Idaho in 1963 when he decided to publish a regular Bible-science newsletter. Lang had then been a minister for 26 years and had, as he admits, “devoted no time to the sciences,” but felt a need for a creation-science newsletter because none existed at that time (Lang and Lang 1984:1).

Lang concurs that Whitcomb and Morris’s 1961 *Genesis Flood* “really sparked the modern creationist movement” (Lang and Lang 1984:6). When the CRS was formed in 1963, Lammerts notified Rev. Herman Otten, another Concordia graduate who played a key role in opposing liberalism and evolution in the Missouri Synod. Otten in turn contacted Lang, who responded by mimeographing the first issue of the *Bible-Science Newsletter* in his church. (This preceded publication of the first *CRSQ*, though by less than a year, and the EPM did not publish on a regular basis; thus *BSN* is the oldest continuing creation-science periodical.)

Otten strenuously opposed modernism and promoted fundamentalism in his book *Baal or God* (undated [1965]). At this time (the 1960s) there was a fierce struggle in the Missouri Synod between fundamentalists and “liberals.” The fundamentalists won, largely due to Otten’s efforts. In the chapter “Creation” in Otten’s book, he insisted on the literal truth of Genesis and special creation, and described the capitulations to evolution by most denominations. “Christianity rejects the theory of evolution because it is diametrically opposed to the biblical account of creation.” He also praised the CRS for affirming strict creationism, and presented many of the standard anti-evolution quotes. Otten has continued to stress creationism in his *Christian News* (formerly *Lutheran News*), and, as previously mentioned, has recently come out strongly in favor of the “historical revisionist” claim that there was no Nazi Holocaust.

In response to the *Newsletter*, the Bible-Science Association was organized in 1964. Active in its formation were two housewives in Orange County, California, Jean Sumrall and Nell Segraves, who later founded, with Morris and others, the Creation-Science Research Center in San Diego. Californian Paul Hackstedde became the first BSA president. As many of the original BSA members were Southern Californians, the BSA held its first Creation Seminar (Bible-Science Institute) in Los Angeles.

The main speakers at this Seminar were CRS officers: Lammerts and Rusch; also Burdick, Howe, and Davidheiser. Their presentations, plus one by Lang, were published by the BSA as *The Challenge of Creation* (Lang, ed., 1965). Because CRS scientists predominated as speakers, BSA members felt that BSA and CRS ought to merge. The CRS resisted this suggestion; they wanted to remain a scientific organization and not be controlled by laymen; the BSA, for their part, wanted to spread the message of creationism to nonscientists and in churches (Lang and Lang 1984:5; Morris 1984:215-6, Lammerts 1974:62). So CRS has remained unaffiliated with other organizations (though membership overlaps), and the BSA has concentrated on a different type of ministry.

In addition to publication of the *Bible-Science Newsletter*, the Bible-Science Association engages in a number of activities to promote creationism. It sponsors local BSA chapters, providing organizational help, BSA membership and subscriber lists, promotional assistance and the like. There are currently several dozen local groups officially affiliated with the BSA. I have attended meetings at two of these for several years: the San Fernando Valley BSA chapter, and the South Bay Creation-Science Association.

The first of the BSA's national creation conventions was held in Milwaukee in 1972. The presentations were published as *A Challenge to Education* (Lang, ed., 1972). Milwaukee hosted a second BSA convention in 1974, published as *A Challenge to Education II* (1974a, 1974b). Creation conventions or conferences have been held in cities across the nation since then, sometimes every year, sometimes every other year (creation conferences sponsored by local groups are held in off years). One of the most successful was the 15th Anniversary Convention of the Bible-Science Association in Anaheim, California, published as *Repossess the Land* (BSA 1979). The Anaheim BSA convention was sponsored locally by the Creation-Science Research Center and the San Fernando Valley chapter of the BSA.

The BSA publishes a wide variety of creationist materials. It published numerous illustrated tracts in 1973 and 1974 (all apparently written by Lang, but not credited) (BSA 1973a-j; 1974a-g). It also publishes books and booklets, and sells approved creationist books from various sources. "Five Minutes with the Bible and Science" is a pamphlet series which is now incorporated as an insert in the *Bible-Science Newsletter*. A "Science Readers" series began as monthly leaflets for young students in 1973, then was published in two and later four volumes in 1974 and 1976. It has now evolved into the "Our Science Readers Books": a series of twelve small volumes for kindergarten through high school. These volumes (Bartz, ed., 1985-1987) are strongly creationist.

Where else can you send a student to do research on coal, the Galapagos Islands, or petroleum in the confidence that he can do his research without having evolution subtly thrust into his thinking? And more importantly, [this series] supplies the student with important facts which help him see that the Biblical view is an intelligent and better alternative to evolution. [1985:v]

The BSA has also sponsored geology tours every year since 1968. Burdick led many of these, including the first, and one in 1970 to the Grand Canyon in which he collected more rock samples to test for pollen, again finding evidence of Precambrian pollen. Other tours have been to Canada, Alaska, Hawaii, Europe, Israel, the Galapagos Islands and Peru, New Zealand, and India. It was on a 1971 tour to Mt. Ararat, led by Burdick, that John Morris (son of Henry Morris), then a city engineer in Los Angeles, became committed to creationism and the search for Noah's Ark (J. Morris 1973:2; H. Morris 1984b:217-8).

Lang has also promoted creationism by giving lectures and seminars across the country at a truly hectic pace, usually at churches and local BSA chapters. The BSA now makes available a list of several dozen approved speakers all over the country who give creation-science presentations.

In 1948 Morris picked up a hitchhiking University of Minnesota engineering student, William Overn, and gave him a copy of his first book. Overn later became a senior staff scientist with Sperry Univac working in electromagnetics, computer and

space technology, and a member of the Minneapolis branch of the BSA. He offered to help modernize and computerize Lang's BSA operation. In 1978, in response to this offer, the Bible-Science Association moved its headquarters to Minneapolis, its present location. Paul Bartz took over as managing editor of BSA and editor of the *Newsletter* a few years later. Overn's niece, Nancy Pearcey, writes regularly for the *Newsletter*; she also researches the "Our Science Readers Books," and now runs a writing and editing service for creationist authors in Toronto with her husband. In the pamphlet *Teaching Creationism* (undated) Pearcey urges, quite sincerely, that children be taught "the tools of thinking, of learning, of arguing, of clarifying, of logical inference" rather than just mechanical memorization.

Under Walter Lang, the Bible-Science Association developed a reputation for naive and ill-informed espousal of virtually any "Bible-science" claim, whatever the source and whatever the evidence. Lang's admitted lack of scientific training did not daunt him in the least; he wrote, taught, preached and lectured to promote Bible-science and strict creationism around the clock and around the country. Lang's approach is Bible-science at its most direct: all true scientific facts can be made to conform to and vindicate the inerrantist interpretation of the Bible; if they cannot, they are simply wrong. Lang's exuberant and scientifically uncritical approach causes consternation and some embarrassment among the more scientifically sophisticated creationists such as CRS and ICR. Under Lang, the Bible-Science Newsletter has publicized and endorsed the more outrageous creationist and Bible-science claims, such as Setterfield's slowing speed of light theory, the NASA proof of Joshua's Missing Day story, and many others. Lang himself is quite sympathetic to geocentrism.

Lang champions what he calls "creation evangelism" (the following explanation is from a lecture):

We have developed what we call Creation Evangelism where we try to get people interested in the Gospel by talking to them about dinosaurs, or talking to them about UFO's, or talking to them about whether Noah's Ark is still on Mt. Ararat. These are things that interest them, and we get their interest then. Then we show that we have a better explanation for all these things than the science and the educational world has today. Then we lead them on to show that the reason we have this problem is because of human evil, that it has also hurt all of nature, too, and there is only one solution for everything. This is the love of God in Christ, Christ's substitution. We point them to what we call the Biblical doctrine of perfection, where God made a perfect world at the beginning, as here in the Garden of Eden. Adam named all the animals when he was only one day old. No scientist can do that today. Here we get a picture of perfection. Then when he fell into sin, that ruined it all. Not only did it ruin human beings, so that you and I are born in sin and are born enemies of God by nature, but also it ruined all of nature. In Job 25 Bildad says that the sun is not pure and the moon is not pure and all of space is not pure, all because of human evil. This is why scientists can never find absolutes in nature or in what they call science. The only absolutes you ever will find is when there is moral perfection, and this is possible only in Christ and in His Word. 1986:14]

A few years ago, Lang became emeritus director of BSA, and thus has had less direct control over the organization. The BSA, now under the leadership of scientists such as field director William Overn, and its new president, Russell Arndts (a professor of chemistry at St. Cloud State University with a Ph.D. in inorganic chemistry and physics from Indiana University), is trying to shed its image as unscientific purveyor of sensational and dubious Bible-science claims. Rev. Paul Bartz, however, who is now the editor of the *Bible-Science Newsletter* and executive editor of BSA, still takes a hard-line

Bible-science approach, and continues to denounce the evolutionist-humanist forces arrayed against true Christianity.¹⁶

In 1985, Bartz wrote a front-page article in the *Bible-Science Newsletter* titled “Can Extra-Biblical Scholarship Methods Measure or Correct the Canon of Scripture?” in which he condemns attempts to “prove” the Bible true by appeal to science (Bartz makes a distinction between “proving” and “demonstrating” biblical truth: the latter is good Bible-science). In it he chastises attempts (obviously he is referring here to Faulstich, and his supporter Lang) to use computers to prove Bible chronology.

Lang apparently felt that control of “his” BSA was taken away from him. In an item in his *Ark Today* subtitled “Bible-Science Dissolved,” Lang informs his readers of the changes at BSA thusly:

The Bible-Science Association, as it has been constituted in the past is being dissolved and a new constitution and a new charter are being developed. The name “Bible-Science Association” will continue. The more creationist organizations there are, the more spontaneous interest can be generated in creationism. The new Bible-Science Association will be going in its own directions. Walter Lang is now associated with the Genesis Institute, the Ark Project, The Chronology-History Institute, and the Creation Evidence Museum of Glen Rose. [1987:11]

In 1984 Lang, with his wife, wrote *Two Decades of Creationism*, a chronicle of modern creationism concentrating on his BSA ministry, and expounding on his call for “creation evangelism.” Lang now devotes most of his energy to the Genesis Institute, a new organization he founded which is affiliated with Eugene Faulstich’s Chronology-History Research Institute, and the Genesis Institute’s publication which he edits, *The Ark Today*, in which he continues in his old manner.

THE CALIFORNIA TEXTBOOK DISPUTES: 1969-1972

Walter Lammerts had been a Sunday School teacher of Jean Sumrall in a Lutheran church in Pasadena. Sumrall attended Berkeley for a year, then got a job at Caltech, where she met her husband. Their children attended a Lutheran school in Redondo Beach, but when they moved to Costa Mesa they did not like the Lutheran school there and had to look into the public schools. Jean Sumrall found that her new neighbor, Nell Segraves, had similar concerns. Segraves, a Baptist, did not finish high school, and worked in her husband’s business.

Sumrall and Segraves got involved in Orange County Republican politics, and started attending public hearings in order to oppose anti-Christian teaching in the public schools. Then came the 1961 Supreme Court decision, initiated by Madalyn Murray (O’Hair), head of the American Atheist Society, which protected atheist children against required religion in public schools. This shocked and upset Sumrall and Segraves. The two housewives responded by devising a retaliatory argument: they gathered legal opinions which convinced them that they could insure that Christian, creationist students would not be subject to any teaching offensive to their religious beliefs. This strategy is

¹⁶ There has since been another shakeup at BSA. Overn and many other stalwarts have been ousted. Bartz remains as editor, though in the new BSA’s quest for scientific respectability it remains to be seen if he can last. He has in the past endorsed the most naive Bible-science claims, and has championed the more sensational fundamentalist accusations against evolution

laid out in their booklet *A Legal Premise for Moral and Spiritual Guidelines for California Public Schools* (Segraves and Sumrall, undated). They decided to focus on evolution, reasoning that it was irreligious and hence fostered atheism, and thus illegally and unconstitutionally violated the rights of Christian schoolchildren. Sumrall contacted her old teacher, Lammerts, who was then planning the Creation Research Society, for scientific advice with which to counter evolution.

After seeing Lang's *Bible-Science Newsletter*, Sumrall and Segraves were active in the founding of the Bible-Science Association; they also founded the Southern California BSA branch and organized creation science seminars. In 1963 they also appeared before the California State Board of Education to pursue their demands that Christian children not be indoctrinated with evolution in public schools. Rather than insisting that evolution be excluded (the 1968 Supreme Court *Epperson* decision was to finally end all such legislation), they urged that evolution be labeled a theory rather than a fact, which the Board agreed to, and then for inclusion of creationism in the science textbooks, which they did not.

By 1969, with the addition of several members appointed by Governor Reagan, the Board was considerably more conservative. The State Superintendent of Public Instruction, Max Rafferty, actively encouraged fundamentalist and creationist demands, and had been in contact with Sumrall and Segraves since 1963. In 1969 Rafferty wrote, in the California Dept. of Education booklet *Guidelines for Moral Instruction in California Schools*:

The teaching of evolution as a part of the religion of Humanism...is yet another area of concern... If the origins of man were taught from the point of view of both evolutionists and creationists, the purpose of education would be satisfied. By concentrating on only one theory and ignoring others, it is tantamount to indoctrination in one special religious viewpoint. [Quoted in J.A. Moore 1974:177]

Meanwhile, the State Advisory Committee on Science Education, which included distinguished scientists such as Jacob Bronowski, issued a very different set of guidelines, the *Science Framework for California Public Schools*. Many Board of Education members objected to these curriculum guidelines—in particular to two paragraphs about evolution. Board members who objected included two Mormons (one was Rafferty's personal physician), one Seventh-day Adventist, the president of Pasadena's Fuller Theological Seminary, and a Baptist. Thomas Harvard, Rafferty's Mormon physician, and John Ford, the Adventist, got the Board to hold a public hearing. The creationists wanted to scrap the entire Science Framework as hopelessly evolutionist. However, at the hearing, Vernon Grose, a consulting aerospace engineer, Pentecostalist, ASA member and creationist, presented the creationist lobbyists with a written statement, which could be inserted into the Framework, calling for inclusion of creationism when evolution is taught. This surprise recommendation was adopted, and the Framework, with Grose's two added paragraphs, passed unanimously. The scientists who wrote the Framework were horrified, and publicly repudiated the changes. The Board allowed them only to insert a disclaimer into the *Framework*.

Textbook publishers seemed more than willing to present creationism alongside evolution in order to conform to the new California guidelines. According to J.A. Moore (1974:181), Junji Kumamoto, a UC Riverside chemist and the only professional scientist on the curriculum commission during these years, struggled single-handedly to keep

creationism out of textbooks. In 1972, prior to final textbook adoptions, a public hearing was held which turned into a confrontation. Scientists had begun to realize what was happening, and urged the Board not to yield to creationist demands. Nineteen California Nobel laureates signed a petition (more than a quarter of the number—72—who signed the 1986 Supreme Court *amicus* brief—and all from one state). Of the 23 creationist witnesses, only three were ministers; twelve were scientists and engineers. Of the evolutionist witnesses, only four were scientists; many were theologians. John Ford read a letter from NASA rocket scientist Wernher von Braun urging that “alternative theories” of origins—i.e. creationism—be presented in schools. Von Braun’s letter, reprinted in tract form as *The Case for Design: A Letter from Wernher von Braun—NASA*, (undated), is basically an affirmation of the Design argument: there must be design and purpose in the universe because science shows there is law and order. If physicists can accept electrons as real, why not accept the “Designer”? To be forced to believe that everything happened by chance “would violate the very objectivity of science itself.”

The Board finally agreed to insure neutrality by requiring that textbooks describe evolution as a theory only, and changing certain passages to avoid dogmatic evolutionist assumptions: a decision which fell far short of what the creationists had expected. Four men were appointed to implement these recommendations: Ford, Richard Bube, Robert Fischer, and another self-described creationist. Bube, a Stanford University professor of materials science and engineering and editor of the *Journal of the American Scientific Affiliation*, is considered a theistic evolutionist by strict creationists. Fischer is a chemical and electrical engineer with a Ph.D. from University of Illinois, senior vice-president of Biola University, and author of *God Did It But How?* (1981), a book about “Creation, Science and Christian Faith.” He is an old-earth creationist who favors the Day-Age theory; he concedes that evolution is “useful” and is more than a mere “theory,” but notes that it has its weaknesses. His emphasis is that one’s attitude towards origins is primarily a paradigm choice: either a purely naturalistic worldview, or a theistic, supernaturalistic and miraculous worldview.¹⁷

Creationist influence on the Board of Education had peaked by 1972, though California creationists tried energetically to prove that the public supported them (the oft-quoted Cupertino Union district and Crescent City polls, which showed that a large majority of the public favored teaching both creationism and evolution, date from this period). In 1973 a majority of board members voted for a resolution requiring that textbooks state that creation and evolution were both “fully supported by scientific fact.” Despite majority support, it fell short of passing by one vote. Garrett Hardin (UC Santa Barbara) and another biologist co-authored a new section emphasizing evolution for the *Science Framework*, which was accepted in 1974.

Meanwhile, Segraves’ son Kelly helped Lang with his Bible-Science radio program, and later Kelly Segraves formed a separate Bible-Science Radio organization with other Los Angeles BSA members. In 1970 Jean Sumrall, Nell Segraves and Kelly Segraves attempted to join forces with Henry Morris. For a brief period, beginning in 1970, they worked together in the same organization.

¹⁷ Because of this book, R.L. Hymers of the Fundamentalist Baptist Tabernacle in Los Angeles recently excoriated Fischer for advocating a “form of evolution” which violates Biola’s doctrinal statement. He levelled these charges in a 1988 letter sent to scores of fundamentalist leaders and many others.

THE CREATION-SCIENCE RESEARCH CENTER

Henry Morris had a successful career in hydraulic engineering. He spent thirteen years (1957-70) at VPI as professor of hydraulic engineering and chairman of the civil engineering department. His 1963 textbook *Applied Hydraulics in Engineering* is still in use (it was revised and enlarged, and a co-author was added, in 1972). The entries on “Hydraulics,” “Fluid Mechanics,” “Hydrostatics,” and “Hydrodynamics” in the 1970 *Encyclopedia Americana* are by Morris; the latest edition (1984) still carries Morris’s articles.¹⁸ But Morris’s increasing involvement with creationism caused friction at VPI. Morris agreed to leave on the condition he got a year of sabbatical leave with full pay first, which VPI accepted. Despite tempting offers from Auburn University (an endowed chair and freedom to teach creationism) and LeTourneau College (a creationist school whose founder and president, Richard LeTourneau, was also an engineer), Morris wanted to found a true Christian university based on creationism.

At a Bible conference at Biola College, Morris met Tim LaHaye, pastor of Scott Memorial Baptist Church in San Diego, who had a similar vision. LaHaye has become wellknown himself for identifying the cause of most of the evil in the world as being due to “secular humanism.” He is the founder-president of Family Life Seminars (Creation-Life, the ICR publishing affiliate, is named for Morris’s Creation institute and LaHaye’s Family Life). LaHaye wrote *The Battle for the Mind*, *The Battle for the Public Schools* and *The Battle for the Family* to expose the anti-Christian humanist conspiracy with which biblical Christianity is locked in mortal combat. “Most of the evils in the world today can be traced to humanism, which has taken over our government, the U.N., education, TV...”, etc. (1980). Declaring that evolution, which is based on faith rather than on science, is the basis of all secular education, he calls for political action to end secularist-evolutionist oppression. “No humanist is qualified to hold any governmental office,” he stated (1980). He has also written other books such as *The Hidden Censors* (the humanist media) and *The Beginning of the End* (Bible prophecy).

Morris and LaHaye, along with LaHaye’s colleague Art Peters, began by founding Christian Heritage College, sponsored by LaHaye’s Scott Memorial congregation, in 1970. CHC was located on the grounds of the San Diego church until 1973, when it moved to the campus of a former Catholic school in El Cajon, inland from San Diego. The CHC Doctrinal Statement insists, quite explicitly and in unambiguous detail, on biblical inerrancy, on strict, recent fiat creation *ex nihilo*, the worldwide catastrophic Flood as a result of man’s sin, and other fundamentalist doctrines. Morris wanted to make absolutely sure that there was no chance that his college could ever slide into compromise on these issues.

LaHaye, Morris, and Peters each served as CHC president. LaHaye now works in Washington D.C. as head of the American Coalition for Traditional Values, a group with broad-based fundamentalist support which lobbies for a totally Bible-based society. His wife Beverly, who was the first CHC registrar, is now well-known as leader of Concerned Women for America.

Morris also started a “creation research division” at his college in 1970 (LaHaye and Morris like to say that in 1970 it was housed entirely in Morris’s right-hand desk

¹⁸ Interestingly, the encyclopedia still describes Morris as being at VPI. The 1984 edition also has a good entry on “Creationism,” which discusses Morris, by Ronald Numbers.

drawer). It was Morris's creation research division that the two Segraves and Sumrall merged with. They wanted to prepare creationist textbooks in time for the 1972 textbook adoption process, and needed authors with scientific expertise. A few years earlier the CRS had declined to affiliate themselves with Segraves' and Sumrall's Bible-Science group, but Morris wanted to produce creationist books too, so he agreed to a merger. Thus was born the Creation-Science Research Center.

The main project of the new CRSC was development of the "Science and Creation Series": eight booklets, for grades 1-8, in student and teacher editions, plus an overall reference book. Differences between the Segraves-Sumrall party and Morris's CHC group arose during this project. The reference book, *Science and Creation* (Boardman, Koontz, and Morris 1973 [1971]) was completed; it consists of the standard creation-science arguments, advocates strict young-earth creationism, and contains both scientific and biblical references. William Boardman, listed as first author, has a chemistry Ph.D. from the University of Iowa and is a chemistry professor at Biola. Koontz, who has a Ph.D. in entomology from Oregon State, is a biology professor at Biola.

Morris (1984:232-3) says he thought the textbook selection deadline was too close for completion of the eight booklets (they had to be submitted in 1971), but that the Segraves forged ahead at great expense to beat the deadline. Jimmy Phelps, assistant superintendent of the Santee, California school district, and Morris are listed as series editors; Kelly Segraves as managing editor. Consulting editors are W.J. DeSaegher, who has a Ph.D. in English from UCLA and is chairman of the English department at International University near San Diego, and the principal of Christian High School in San Diego. Authors for the eight booklets (Creation-Science Research Center 1971a-h) include Douglas Dean of Pepperdine, Clyde McCone of Cal State Long Beach, Bolton Davidheiser of Biola, Donald Chittick, Robert Kofahl, and a number of public and Christian school teachers.

Donald Chittick was a chemistry professor at George Fox College, a Quaker school, and later became research and development director for company that converts biological waste into fuel. He wrote a 1984 book *The Controversy: Roots of the Creation-Evolution Conflict* advocating strict creationism. His own research, he says, is based on the creationist assumption that coal formed rapidly as a result of the Flood, and he believes that his creationist assumptions make him a better scientist, able to produce better synthetic fuels. He appeals to Gödel's theorem to argue that since truth or falsity of a logical system cannot be determined within that system, the creation-evolution controversy can only be determined by appeal to an external reference—and the Bible is absolute truth.

According to the *Creation-Science Report* (1987): "The Science and Creation Series was introduced into 28 states through the adoption process during 1973 and 1974, thus forcing Science teachers to read the creation material as a viable alternative to the evolutionary assumptions of science." Morris, however, says they were "never used much" and that they contain many errors. They were, however, used in the Kanawha School District in West Virginia, where they formed "the core of a curriculum unit on the subject of origins" according to a recent CSRC flyer. In 1974 Kanawha County was the scene of violent demonstrations against secular humanism and related anti-Christian and anti-American influences. The Board of Education did not want to ban all the books that

the protestors objected to, but they attempted to restore order in part by approving adoption of creation-science materials.

In 1972 the Creation-Science Research Center split up into its two constituent parties. The Segraves retained the CSRC name but were no longer affiliated with Morris's Christian Heritage College. They reorganized the CSRC elsewhere in San Diego, where they are still located.

After the Segraves left, taking CSRC with them, Morris set up the Institute for Creation Research at Christian Heritage College. Duane Gish and Harold Slusher had recently joined the faculty; together with Morris, they comprised the original ICR science staff. John Morris led the 1972 ICR Ararat expedition, and joined the ICR and CHC staff the next year. The newly-reorganized CSRC received one important addition: Robert Kofahl joined them as their staff scientist ("science coordinator").

Kofahl was an author of one of the "Science and Creation Series" booklets, and testified at the 1972 textbook hearings. He has a Ph.D. in chemistry from Caltech. As an undergrad at Caltech, Kofahl founded the Caltech Christian Fellowship. He was a teacher and president of Highland College, a fundamentalist Bible Presbyterian school, for 21 years. It went out of business at about the time the Segraves reorganized the CSRC.

Kofahl wrote a well-known book called *Handy Dandy Evolution Refuter* (1977) which consists of standard creation-science arguments in a question-and-answer format. It is explicitly religious—evolution is wrong because it contradicts the Bible and hinders people from accepting Christ—but is also packed with scientific references. Kofahl also co-authored, with Kelly Segraves, *The Creation Explanation: A Scientific Alternative to Evolution* (1975), a creation-science textbook. This book also contains biblical references as well as scientific: explicit appeals for the reader to turn to Christ. The book's purpose is to show "true science in its proper perspective, as a searching out of the handiwork of the Creator for the glory of the triune God..." It was "written to demonstrate how the facts of the sciences support what the Bible says about creation and the providential rule over the world by Jesus Christ."

The attributes and powers of man cannot be explained on the basis of a purely materialistic process of development from chemicals to cells to animals to man. Man is a spiritual and personal being who must have had a spiritual and personal source.

The Christian scientist has the advantage of divine revelation, and is thus "confident that the final judgments of true science and history will entirely concur with the biblical record." Kofahl and Segraves present in their science textbook a "Creation Model" which matches earth and life history with the appropriate verses from Genesis.

THE GEOSCIENCE RESEARCH INSTITUTE

Another influential creationist organization, which actually predates the CRS, is the Geoscience Research Institute. The GRI was founded by the Seventh-day Adventist church "for the purpose of making available to the SDA Church competent advice concerning relationships between the natural sciences and inspired testimony" (A. Roth, quoted in Toumey 1987; Toumey's dissertation contains a good discussion of GRI). The

Adventists established GRI at their Andrews University in Berrien Springs, Michigan, with Frank Marsh as its first director.

The purpose of the Geoscience Research Institute was thus never intended to be that of evangelizing the public and proselytizing widely for creationism, but rather the much narrower aim of providing its own Adventist teachers with scientific advice regarding creation-evolution and related issues. Therefore GRI plays a role which seems curiously detached from that of George McCready Price, who was of course an Adventist, and who aimed to convince the world. GRI is not descended from Price's Creation-Deluge Society.

Marsh was succeeded as director by Richard Ritland, an Andrews University geophysicist. Ritland wrote *A Search for Meaning in Nature* (1966), a careful, reserved presentation of creation-science arguments intended for use in Adventist schools. Ellen G. White is cited frequently. Ritland does not believe, however, that all fossils result from the Flood, and he doubts the authenticity of the Paluxy manprints.

Harold G. Coffin, a professor of paleontology at Andrews University and member of the GRI staff, wrote *Creation—Accident or Design?* (1969), a 512-page presentation of Seventh-day Adventist creation-science (some sections were written by Ariel Roth, Ernest Booth, Robert H. Brown, Harold Clark, and Edward E. White). Coffin relies heavily on the authority of Ellen G. White in this book; he quotes her, for instance, in explaining that many new species have been produced by hybridization since the Flood:

It is Satan's desire to bring discredit upon the Creator, to cause discomfort to man, and to support his counterfeit of the creation story by working through the laws of genetics to bring about thorns on roses, stingers on nettles, parasites, predators, and the host of other ugly and degenerate changes. [1969:365]

Genesis 'kinds' may also have crossed before the Flood: some of the bizarre fossil forms, including alleged ape-men, may be the result of such crossing. God declared these degenerate products of amalgamation "corrupt." Citing White, he says that Adam was twelve feet tall. Coffin also stresses that the Adventist belief concerning the Sabbath day is based directly on the creation account, and describes each of the creation days.

(Coffin's book was illustrated by Harry Baerg, professional illustrator for Review and Herald, the Seventh-day Adventist publisher. Baerg wrote his own creation-science book *Creation and Catastrophe: The Story, of Our Father's World* (1972), with nice drawings on every page. He also cites White frequently. Adam is fifteen feet tall in Baerg's book. Baerg suggests that a global network of shallow canal-like seas may have caused the the worldwide tropical climate of the antediluvian world. The Flood was precipitated either by a tilting of the earth's axis, or by extinction of the fires which burned on the moon.) Coffin also wrote *Origin by Design* (1983), assisted by Robert H. Brown, Roth, and edited by Gerald Wheeler. It is similar to his earlier book, covering the same topics, but with updated scientific references, no mention of Adventism, and only a single mention of E.G. White. Brown served as director of GRI; Roth is the current director.

Gerald Wheeler wrote *The Two-tailed Dinosaur: Why Science and Religion Conflict Over the Origin of Life* (1975). While completing his M.A. at the University of Michigan, Wheeler heard a student describing a dinosaur exhibit in evolutionary terms. It struck him that this paleontological evidence could be interpreted two very different ways: evolutionist or creationist. Much of his book concerns the history of evolutionist

and creationist thought. Interestingly, Wheeler denies the popular notion that science progresses by Baconian inductive reasoning operating upon accumulated facts. This allows him to argue that the seeming scientific triumph of evolution may be less than it appears—that the same data may be interpreted differently in terms of another paradigm: creationism.

The creationist, trying to reconcile the opposing claims of Biblical revelation and current science, seemingly finds himself in an impossible dilemma. Each discovery, each textbook or scholarly paper, and each scientific symposium appears to make his position more impossible to defend. He begins to wonder if perhaps after all he should discard the Bible—the source book for his entire philosophy, the framework of his way of looking at reality.

The facts sometimes do seem to oppose him. Yet he is not as threatened as he fears, because science does not operate as Francis Bacon and his followers believed. Science does not march steadily towards absolute knowledge or interpretation. [1975:14-5]

Wheeler also has a chapter on the California textbook controversies and on the Flood Geology “paradigm.”

Though strongly committed to Flood Geology and a literal six-day creation, some Adventists—including some GRI members—allow for an old earth by a variant of the Gap Theory. With the development of radiometric dating methods, some Adventists, including some members of the old Creation-Deluge Society, became convinced the earth must be far older than a few thousand years. They could not argue that fossils were formed during the ‘gap’ between the first two verses of Genesis, as this contradicted Ellen G. White’s teachings about the Fall and the Flood, but they felt they could allow for pre-biotic geological ages prior to the six-day creation. Brown, a physicist trained in radiometric dating, seems to support this interpretation.

The Geoscience Research Center moved from Andrews University to Loma Linda University in California some years after it was founded. Loma Linda is the Seventh-day Adventist institution perhaps best known for its state-of-the-art medical school. In 1974 GRI began publication of *Origins*, a creation-science journal.

The GRI scientists are much more cautious than their counterparts in ICR and other creationist organizations. They engage in meticulous experiments designed to test the creationist and evolutionist models. In *Origin by Design*, for instance, Coffin describes his flotation experiments of vegetable matter at GRI (1983:125-7); they support the Flood theory of the origin of coal. Zoologist Leonard Brand used live reptiles and amphibians in his lab to see how footprints were formed in different conditions: dry, damp, and wet sand, and when the animals were walking on sand underwater. The underwater tracks, he concludes, resembles most closely fossil tracks such as found in the Grand Canyon’s Coconino Sandstone. This contradicts the evolutionist assumption of the desert origin of the sandstone, and supports the Flood model. Brand has published these experiments both in GRI’s journal *Origins* (1978) as well as a standard scientific journal (1979). The GRI scientists in fact are frequently able to publish their laboratory findings in regular refereed journals.

GRI members also criticize other creationists fairly freely when they feel they are not being scientifically rigorous. Thus, other creationists such as the ICR scientists tend to feel that GRI is overly cautious and critical in evaluating creationist evidence and claims, though they respect their strong creationist stance. The GRI scientists believe that science will support creationism, but they maintain that this science must proceed

from open-minded neutrality, not—as is the case with most other creationists—from crude and naive attempts to force data into pre-conceived theories derived from the Bible. Thus, they try to uphold an ideal of inductive science not committed to prior conclusions, and often accuse other creationists of unscientific deductive reasoning in starting with biblical, religious ideas rather than from independent, neutral observations and facts (Toumey). A notable example of this relatively critical attitude is Berney Neufeld's article "Dinosaur Tracks and Giant Men" in *Origins* (1975), in which he discounts the creationist claims of the Paluxy manprints.

Despite this difference in approach and attitude, ICR maintains good relations with GRI. ICR scientists have published in *Origins* (e.g. Brazo and Austin 1982), and ICR students have gone on to further graduate study at Loma Linda. And creation-scientists in general admire the long and continuing tradition of Seventh-day Adventist opposition to evolution.

THE INSTITUTE FOR CREATION RESEARCH

The Institute for Creation Research, founded in 1972 after the original Creation Science Research Center split up, has become the best-known creation-science organization. Morris and Gish, ICR president and vice-president, respectively, are easily the most prominent and widely recognized creationists in the world; Morris as creation-science theoretician and author, and Gish as indefatigable debater. ICR, founded as the research division of Morris and LaHaye's Christian Heritage College, became institutionally independent of CHC in 1980, though it remained physically on the CHC campus until 1985, when it moved to a new building in nearby Santee. ICR has published a monthly newsletter, *Acts & Facts*, since 1972, sent free on request (the mailing list is now 82,000). Each issue contains a separate creation-science article as an insert: the *Impact* articles series, which are written either by ICR faculty or non-ICR creationists.¹⁹ *Acts & Facts/Impact* compilations include Morris, Gish and Hillestad 1974, Morris and Gish 1976, Gish and Rohrer 1978, and Morris and Rohrer 1981, 1982. The ICR Museum of Creation and Earth History was founded in 1977, and now occupies expanded quarters in the new ICR building.

Creation/Evolution debates have attracted a great deal of public and media attention. Marvin Lubenow, a Baptist minister who has written for ICR's *Impact* series and is also active in BSA and CRS, wrote an account of a decade of ICR debates, *From Fish to Gish: Morris and Gish Confront the Evolutionary Establishment* (1983). Lubenow's book includes a discussion of a 1977 debate at UCLA between Gish and Henry Hespdenheide of the UCLA Biology Department, moderated by Everett Olson (Lubenow 1983:155-163). In his Introduction, Lubenow describes a 1975 lecture by UCLA geologist J.W. Schopf which he attended at the University of Michigan. Lubenow, hiding his creationist identity, asked Schopf a question after the lecture (concerning the claim that many terrestrial plant genera were already in existence in the

¹⁹ *Impact* No. 166, "Mutation Fixation: A Dead End for Macro-Evolution" (Beisner 1987), is of local interest. It is based on a 1972 article by Robert Byles, until recently a member of the UCLA Anthropology Dept. Byles had presented a number of conditions necessary for mutation fixation. The ICR article argues that these conditions preclude macroevolution. This misses Byles' point, however. Byles was referring to a particular hypothesized form of directed, reductive mutation: the "Probable Mutation Effect."

Cambrian) which he felt demolished evolutionist claims. A young man then came up to Lubenow and said, “You’re a Christian!” This man (not indentified in Lubenow’s book) was David McQueen, then a graduate student in Michigan. McQueen later joined the ICR faculty. Prior to joining ICR full-time, he gave a deposition for the Arkansas creation-science trial, but was not called as a witness at the trial itself. (No ICR members were witnesses at the trial.)

Following its administrative separation from CHC, ICR began offering graduate courses. In 1981 the California Private Postsecondary Education Division approved ICR’s M.S. degree programs in astro/geophysics, biology, geology, and science education. (“Approval” is not the same as accreditation. The ICR Graduate School has never sought state accreditation, knowing that its outspoken commitment to fundamentalist creationism would preclude this. “Approval” by the PPED means that California officially recognizes graduate degrees as legitimate, though non-accredited. Renewal of this approval is now being contested.)²⁰

M.S. theses have included *Theories of Origins: Do They Persist Despite Contrary Evidence?* (Brazo 1983; biology), *A Critique of Molecular Homology* (Knaub 1983; biology), *Scale Time Versus Geologic Time in Radioisotope Age Determination* (R.L.N. Mandock 1983), *Theoretical Thermal Calculations for Heat Distributions with Spherical Symmetry* (Mandock 1983), *A Rationale for the Christian College Biology Curriculum: A Case Study at Christian Heritage College* (M.J. Nutting 1983), *Origin of Bedded Salt Deposits: A Critique of Evaporative Models* (D. Nutting 1984), *A Determination of the Time of the Flood from the Geologic Ages of River Deltas* (Rasmussen 1984), *A Reevaluation of the English Peppered Moth’s Use as an Example of Evolution in Progress* (Osborne 1985), and *A Pilot Study on the Validity of Using an Inquiry Approach in a Video Format for Origins: Two Models, Evolution-Creation in Christian Schools* (Townley 1985). I took an ICR graduate level course in Science Education taught by Richard Bliss on the two-model approach. (I did not take it for graduate credit, so officially I was auditing.)

ICR Summer Institutes have also been held each year since 1972, both at ICR and at various locations around the country. These are five-day programs on creation-science and biblical creationism (I attended two such Summer Institutes at ICR), which can be taken for undergraduate or graduate credit (the last requiring an additional paper). Of the 187 registered attendees at one of these Summer Institutes, in 1984, the following occupations were represented:

²⁰ In 1988 this PPED approval was due for renewal. A five-man evaluating committee voted 3 to 2 for renewal, but later, after meeting with State Superintendent of Public Instruction Bill Honig, one member switched his vote to deny approval. The two who voted for approval were George Howe of The Master’s College and the Creation Research Society, and G. Edwin Miller, former president of Morris’s (and ICR’s) Christian Heritage College. Miller has also been executive secretary of TRACS, a private fundamentalist and creationist accrediting agency founded by Morris. TRACS has accredited Christian Heritage College, Criswell Center for Bible Studies in Texas, and Falwell’s Liberty Baptist College (now University). ICR Graduate School is an associate member of TRACS.

ICR has thus far avoided withdrawal of approval by negotiating with the Dept. of Education, promising to keep the “religious” aspects of its creationist teachings separate from its “science” instruction. Meanwhile, in 1989 a new committee was chosen by PPED to re-evaluate ICR’s graduate school approval and to check its compliance with the negotiated conditions. This new committee includes UCLA paleontologist Everett Olson and UCLA molecular biologist Richard Dickerson.

Teachers: 43

College: 11

Biology: 1

Other science/engineering/math: 6

Christian college: 1

High School (Jr./Sr.): 20

Christian H.S.: 4

Public H.S.: 16

Elementary School (public): 7

Public Schools (both elementary and secondary, or unspecified): 5

Students: 35

College (inc. graduate level): 24

Christian college: 7

Majors in evolution-based fields (biol., geol., biochem., paleontol.): 10

Other science/engineering majors: 5

High School: 9

Christian: 2

Public: 2

Homemakers: 15

Engineers: 13

Aerospace: 4

Electrical, electronics: 5

Civil: 2

Religious professions: 12

Minister/pastor: 6

Navigators staff: 4

Wycliffe linguist (Bible transl.): 1

Missionary: 1

Armed Forces [2 of these also engineers]: 7

Army: 2

Navy: 2

Air Force: 2

Creation-science authors/lecturers [most also listed under other categories]: 7

Science- or medical-related fields [not including physicians and nurses]: 5

Naturalist: 1

Plant chemist: 1

Biol. ass't: 1

Veterinary ass't: 1

Med. technician: 1

Physicians (M.D.s): 4

Nurses: 4

Electricians, electronics design: 3

Manager (technical): 3

Lawyer: 2

Insurance: 2

Music: 2

Bank/financial manager: 2

Fireman: 2

Misc.: 14

Unspecified: 13

(Note: a number of attendees are listed in more than one category. Many of the homemakers are spouses of other attendees. The “miscellaneous” category includes one each of a very diverse range of professions.)

Among the attendees at the Summer Institutes I attended was someone from my parents’ small town in Connecticut, and a college student who had just completed—and obviously disputed—the UCLA introductory biology course for non-majors. Another attendee was the author of *The Unseen Hand: An Introduction to the Conspiratorial View of History* (Epperson 1985), a massive compendium exposing all the manifestations of the sinister Conspiracy. The chapter “Science versus Reason” presents creation-science, which the Conspiracy is trying to suppress.

Other ICR activities include expeditions and field research, notably the Ararat searches for Noah’s Ark led by John Morris. ICR offers annual week-long Grand Canyon trips²¹ of several types; I attended a back-packing and camping trip to the bottom of the Canyon offered for graduate credit as a field-study course (Biology/Geology 537), which I have described elsewhere (“A Creationist Walk Through the Grand Canyon,” McIver 1987a).

ICR publishes a Technical Monograph series; in order of appearance, Gish’s *Speculations and Experiments Relating to Theories on the Origin of Life* (1972), Slusher’s *Critique of Radiometric Dating* (1981; originally 1973), Woods’s *Center of the Earth* (1973), Barnes’ *Origins and Destiny of the Earth’s Magnetic Field* (1983; originally 1973), Marlyn Clark’s *Our Amazing Circulatory System: By Chance or Creation?* (1976), Slusher and Robertson’s *Age of the Solar System* (1982; originally 1978), Slusher and Gamwell’s *Age of the Earth* (1978), Slusher’s *Origin of the Universe: An Examination of the Big Bang and Steady State Cosmogonies* (1980; originally 1978) and *Age of the Cosmos* (1980), Slusher and Ramirez’s *Motion of Mercury’s Perihelion* (1984), and Austin’s *Catastrophes and Earth History* (1984). ICR plans to publish ICR masters theses as *Technical Monographs* also. Richard Bliss directs a team of writers each summer who have produced several volumes in the ICR *Two-Model Children’s Book* series.

OTHER ACTIVE CREATIONIST GROUPS AND LEADERS

Students for Origins Research began as a student creation-science group at UC Santa Barbara, and now has several branches on other campuses. SOR publishes *Origins Research*, a twice-yearly newspaper which is distributed free to college students and educators. SOR is relatively non-dogmatic, and is the most open-minded of the major creation-science groups. It does not require members to submit to any statement of belief, and freely publishes anti-creationist as well as creationist opinions and articles in its periodical. SOR tries to promote dialogue between creationists and evolutionists, dealing only with scientific and philosophical topics and attempting to avoid religious or political issues. Dennis Wagner, an SOR founder and editor of its journal, advises local creation-science groups to affiliate themselves with student groups so that they can use campus facilities available to registered campus organizations (1985). Paul Nelson, grandson of Byron Nelson, and currently a graduate student at the University of Chicago,

²¹ The BSA has led Grand Canyon trips for many years, and the CRS now has a Grand Canyon Research Station, referred to frequently in CRSQ

writes well-informed reviews for *Origins Research*. Besides their journal, SOR's major project has been a computerized database system, *CREVO/IMS* (Creation/Evolution Information Management System), designed to provide college students with sources of information on the topic (SOR 1983-1984). It consists of listings of books and articles sorted by date, title, and author.

Maranatha Campus Ministries, headquartered in Florida, is a charismatic organization which functions as a denomination (Maranatha Christian Churches) and evangelizes aggressively on campuses across the nation—so aggressively that mainstream evangelicals have accused it of cult-like tendencies, excessive authoritarianism, and “questionable theology” (Frame 1984). Maranatha regularly attacks evolution and promotes creation-science in its free newspaper *The Forerunner*, widely distributed on campuses, and on its *Forerunner* TV program. Rice Brooks, Maranatha's number two man after founder Bob Weiner, founded the Society for Creation Science in 1984, which provides materials and training for campus chapters. Brooks plans to have creationism taught at every major college, at first by registering SCS as a campus organization and teaching the SCS course to the Christian community, and eventually as regular university course. Brooks was the keynote speaker at the 1987 National Creation Conference in Seattle, which was co-sponsored by Maranatha Campus Ministries and the Bible-Science Association. In his talk (“The Battle Has Just Begun”), Brooks exhorted Christians to militant advocacy of creationism.

Maranatha's Society for Creation Science is under the leadership of David Skjaerlund, a doctoral candidate in animal science at Michigan State, who wrote the course manual for the ten-week SCS college seminar, *Creation- Evolution: Understanding the Issues at Hand* (1987). The stated goals of SCS are to: “Evangelize the College Campuses,” “Influence the College Curriculum,” and “promote sound scientific investigations and to take dominion in the earth with Christians as the originators of future scientific discoveries” (undated SCS promotional brochure). The SCS pilot course has been taught at UCLA, among other campuses, beginning in 1987. The March-April 1988 *Society for Creation Science Newsletter* contains testimonies of UCLA students who took the course. Some UCLA comments:

In an age where evolution is used by students as a means to avoid and disobey the Gospel, the SCS Creation Course gives you just enough to destroy their arguments and bring them face to face with their Creator. I have already used the information I learned and it is very effective.

The SCS course, using scientific facts, powerfully refutes the very core doctrines of evolution. The course manual and homework really helped me to understand scientifically why I believe in Creation.

By taking the SCS Creation Course, I was quickly made aware of just how much evolution has attacked Christianity. I realize how important it is to share the truth of God as the Creator in order to counter the evolutionary thought that has been taught to us.

The National Association of Christian Educators, a fundamentalist organization based in Costa Mesa, California, which is dedicated to defeat of “secular humanism” and has become an effective lobbying force, has produced a manual titled *Communicating a Christian World View in the Classroom* (Simonds 1983). It promotes creation-science, and includes a section “Student Questions to Use in the Classroom,” provided by Bliss of ICR.

Chick Publications of Chino, California publishes fundamentalist and creationist books, comic books, and tracts. Jack Chick's comic-book format tract *Big Daddy?* (1972), in which a courageous Bible-believing college student stands up in class and reduces his bigoted evolutionist professor to stammering idiocy by confronting him with creation-science arguments, is one of the most widely-distributed pieces of creationist literature ever. Chick's creationist comic books *The Ark* (1976) and *Primal Man?* (1976) are found in many Christian bookstores, though Chick is often criticized for his savagely anti-Catholic literature.

Of the televangelists who have campaigned against evolution, Jimmy Swaggart has had the biggest audience. Jerry Falwell hosted Henry Morris on his Old-Time Gospel Hour several times in 1981 when he was campaigning for the teaching of creationism in public schools, hosted and moderated the televised debate between Gish and Russell Doolittle of UC San Diego the same year, and distributed one of Morris's books free. Pat Robertson has had many creation-science guests on his 700 Club.

D. James Kennedy of Coral Ridge Ministries in Florida, whose degrees include a Ph.D. from NYU, is now one of the most effective advocates of creationism. He has devoted several of his national telecasts to attacking evolution, which he claims "flies in the face of established scientific laws." Evolution is itself "more religious than creation": it is actually a deliberate attempt to suppress Christian belief. Evolution, Kennedy preaches, is the "pseudo scientific foundation" of "every single anti-Christian" system—especially of Nazism, communism, and secular humanism. Yet, "The whole of evolution is in absolute chaos today and the public does not know it. Students are still being taught the same old lies" (1983:2).

Kennedy, whose anti-evolution sermons are filled with inaccuracies and distortions²², claims that "one of the disheartening things about the advent of Darwinism is that it introduced into science an element of dishonesty which had not been seen before" (1986:1). Kennedy delivered the keynote address at the 1986 International Creation Conference in Pittsburgh, "Origins: Creation or Evolution." This lecture was later telecast on his show. All his telecasts are also distributed free as audiocassettes and pamphlets ("New Evidences for Creation," 1977; "The Collapse of Evolution," 1981; "The Crumbling of Evolution," 1983; "Evolution's Bloopers and Blunders," 1986 [also reprinted in *Bible-Science Newsletter* 1987:25(3)]; "Creationism: Science or Religion?"

²² I have mentioned several in different articles. Two examples: Kennedy states that Darrow bullied Bryan with alleged evidence for "Nebraska Man" at the Scopes Trial, when in fact "Nebraska Man" was not even mentioned at the trial. H.F. Osborn, who had indeed taunted Bryan with this proposed hominid from Bryan's home state, had by the time of the trial realized that the evidence, a single tooth, had likely been misinterpreted). Kennedy simply repeats a story told by Rimmer in 1935 which has become entrenched in creationist folklore (Kennedy 1986:6; Rimmer 1951:118-122).

Another entrenched piece of folklore that Kennedy is also perpetuating is the extremely widely-repeated claim that Darrow, at the Scopes Trial, said that it was "bigotry for public schools to teach only one theory of origins" (e.g. Kennedy 1987:10, and in many other places). This apocryphal quote was popularized and legitimized by Bird in his *Yale Law Review* article (Bird 1978:561), but it originated with a creationist in Ventura, California, who claims to have heard it from a deceased preacher, and mentioned it casually in a journal article published by CRSC. The complete trial record (National Book 1925) contains no such quote. I wrote entire article about the quote (McIver 1988f), which, though spurious, has become enshrined as a potent argument for the "two-model" approach. Kennedy and many other creationists (notably Maranatha's SCS) continue to rely on it.

1987). More recently, he has made a creation-science movie, *The Case for Creation* (1988; see McIver 1988i).

Kennedy was recently (1987) featured in a six-part series promoting creationism on the John Ankerberg show (Thomas Wheeler has written a detailed refutation of Kennedy's presentation). Televangelist Ankerberg was instrumental in exposing the Swaggart scandal. Televangelist Benny Hinn, meanwhile, who espouses Gap Theory creationism in his book *War in the Heavens* (1984), has openly defended Swaggart since the scandal. Hinn, also a Pentecostalist, broadcasts from Orlando Christian Center in Florida. Televangelist Howard Estep of World Prophetic Ministries in Colton, California has promoted Gap Theory creationism in several booklets and videos (*A Handful of Dirt; Evolution: True or False?*).

The late Herbert W. Armstrong has opposed evolution for decades on radio and TV (*The World Tomorrow*). George Vandeman, a Seventh-day Adventist from Thousand Oaks, California who was involved in searches for Noah's Ark in the 1960s, has long opposed evolution on his telecast *It Is Written*. Gene Scott, a funky, iconoclastic preacher based in Glendale, California, who has a Ph.D. in Education from Stanford University and who appeals to hip, highly educated audiences, has endorsed John Pilkey's *Origin of the Nations* (an ICR book), as well as other theories advocating the Flood, British-Israelism, Pyramidology, Atlantis, and various paranormal and supernatural phenomena.

CHAPTER 4

THEORETICAL ISSUES: SCIENCE, RELIGION, AND MORALITY

ATTITUDES TOWARDS THE RELATIONSHIP OF CHRISTIANITY AND SCIENCE

Science, said Max Weber, “dis-encharnted” nature. Christian belief played an important role in this “dis-enchantment” or “de-deification” of nature. All of the natural world was created by God, and is therefore “good” (as declared in Genesis). It reflects God’s divinity, but none of it is itself divine. Over and against the polytheistic cosmogonies and mythologies of its time, Genesis emphatically declared, in its grand language, that all of nature was created by God. The sky was not a god, nor the sea, nor the monsters of the deep, nor any other creature; nature was not composed of any spirits or divinities: all the Cosmos was created by God. This is the message of Genesis.

Many historians of science—especially believing Christians such as Hooykaas (1972), Jaki (1979) and Klaaren (1977)—have argued that the Christian belief in nature as God’s creation was a crucial factor in the development of modern science. The Bible, by “de-personifying” and “dedefying” nature, made nature the creation of a God who exists apart from His creation. Nature does not have to be worshipped or placated; it is not a personality or a divinity. Nature is thus opened up to scientific study (but also, as Lynn White pointed out, to exploitation).

From the realization that the rise of modern science was fostered by this Christian attitude, many Christians argued that true science could not conflict with their biblical interpretation. The Bible spoke of Creation and thus of nature, and whatever the Bible said regarding nature must be true.

We see, then, the Bible is full of nature, begins with the creation of nature, tells us of the redemption of man and nature, and concludes with the renovation of divine nature. How comes it, then, that so many Christians look upon it as hardly worthy of religious consideration, as merely a material substratum to life? [Bettex 1901:184]

Richard Whately, Archbishop of Dublin in Darwin’s time, who prepared a new edition of Paley’s work, argued that Christianity encouraged precisely what modern science claims to do (and what many modern scientists accuse religion of not doing:

The Christian religion made its appearance as the common disturber of the peace of the world, because it put an end to the tranquil influence of custom, authority, credulity, sentiment, and imagination; forced men upon the disagreeable task of examining evidence, searching records, and proving all things. [Quoted in V. Hall 1962:92]

Religion—at least the Christian religion—was knowledge as well as faith, and this included knowledge of nature. Science, before the acceptance of notions of hypothesis-testing and falsifiability, once meant simply “knowledge,” gained and classified in a systematic way. Creation-scientists still conceive of science this way, and thus can insist that knowledge derived from the Bible confirms the knowledge obtained by science. Henry Morris complains that creationists are unfairly excluded as scientists

“merely by definition”—by means of new-fangled definitions of science which exclude biblical knowledge: previously the primary source of knowledge.

Science no longer means “knowledge” or “truth” or “facts,” as once we were taught, but “naturalism” or “materialism,” according to this new article of evolutionary faith. The very possibility of a Creator is prohibited by majority vote of the scientific priesthood, and one who still wishes to believe in God as Creator must be excommunicated. [1984:22]

This confronts us with a fundamental issue: Does religion concern the natural world? Fundamentalist creationists assume that it does. The Bible may be primarily concerned with religion, spirituality, and morality, but it also speaks of nature, and it is equally valid and truthful when it does. The typical liberal attitude is that religion and science concern entirely different realms, and thus by definition cannot be in conflict even when the biblical account seems to contradict what science says about the world. Those who take this position—whether scientists or liberal theologians—are in effect simply saying that the fundamentalists are wrong in their definition of religion. Is this fair? Fundamentalists may be wrong about evolution, but are liberals correct in telling them what religion is, and what it can and cannot concern itself with? If the fundamentalist definition of religion is allowed, then they still have to face the problem of a major conflict between secular science and their religious knowledge; this is not, however, in their view Religion versus Science, but a certain definition of religion (which includes a certain type of science) versus a different, non-biblical science. If the liberal view is necessarily correct, it is not because they alone know what constitutes religion, but because science can now be defined so as to exclude supernaturalism and revealed truth.

Toulmin and Goodfield, referring to initial religious opposition to Darwin’s theory, make a similar point. The standard twentieth-century view is that Religion and Science have different aims: science is descriptive, and deals with Things; religion is normative, and deals with relations between People (and between people and supernatural beings).

As applied to the mid-nineteenth century, however, such a judgment is both too facile and historically irrelevant. For the ‘confusion’ in question, of basing the rules of conduct—Sedgwick’s ‘moral order’—on a particular set of beliefs about the History of Nature and Man’s place in it—the ‘natural order’—had up till that time been an almost universal element in all systems of religious belief... The majority of men had always seen Man as occupying a unique and central place in Nature, and found the final justification of their ethical and religious conceptions in a cosmic history embracing both Nature and Man. [1965:226-227]

This issue parallels the debate in anthropological theory between the “intellectualist” and “symbolist” theories regarding the origins of religion (see especially Skorupski 1983). The “intellectualist” approach (e.g. Tylor, Frazer, much of Evans-Pritchard, and Horton) is more literalist: it assumes that religious ideas began as theories attempting to explain the world and to achieve certain rational ends. The “symbolist” approach (e.g. Durkheim, Leach, Geertz, and Sperber) assumes that religion is primarily expressive: it consists of rituals or statements expressing the social order—the relations between men and between man and God (or gods)—and of rationalizations of ritual behavior (ritual in this view tending to precede the beliefs or myths explaining it). In this social, “symbolist” approach, no religion can be false; it is not tested against any external

reality, nor is it intended to be. (In the “intellectualist” approach, religious theories are protected against falsification by various means—but this is more or less true of any belief system, including even modern science, though science, ideally, seeks to minimize barriers to falsifiability.)

In terms of this debate, the fundamentalist attitude, which is obviously more “literalist,” follows the “intellectualist” approach, while more liberal religious views resemble more the “symbolist” approach. Fundamentalists see the Bible as consisting of statements about the real world as well as the spiritual realm, from which can be derived laws, moral as well as physical, which, if obeyed, will yield certain results. (The notion of “grace”—God’s freely-given mercy to undeserving, sinful man—admittedly complicates this scheme.) The Calvinist doctrine of ‘providences’ was an attempt to account for the often mysterious relationship between the natural and the moral order.

For the disposition to see prodigies, omens and portents, sprang from a coherent view of the world as a moral order reflecting God’s purposes and physically sensitive to the moral conduct of human beings. Such an attitude was not necessarily ‘unscientific’. The search for correlations between disparate events is a valid form of inquiry and the analysis of God’s portents was often conducted in a highly meticulous manner. [Thomas 1971:91]

In the intellectualist view, religion—like science—seeks explanations of agencies and causes of events and conditions. Man can then attempt to predict and influence these events and conditions by means of prayer and ritual. The symbolist view does not maintain that religion cannot ‘do’ anything, but says that what it “does”—the actions it takes and the ends it achieves—are in the *social* rather than the *natural* realm. Many rituals, for example, result in a change of social status; this change is effected by ritualized and symbolic social statements. The change in social status is real, but real in the *social*, not the *natural*, world. The religious practitioners, however, tend not to realize that this apparent cause-and-effect pattern of their (social and symbolic) ritual action is not ‘natural,’ and they are therefore prone to believe that similar symbolic statements and manipulations will similarly have effect upon the natural world.

The concept of “law” presents a case in which the “social” and “natural” domains are often confused. In a model of the world based on the social order, “law” is prescriptive, and emanates from social (even though supernatural) beings. Such law tells humans what they *ought* to do, or not to do. In a naturalist world-view, scientific law is descriptive. It may address causes, but these causes are not social; they do not emanate from the will or desire of any beings, and they have no bearing on our moral behavior.

Another concept which tends to confuse the issue is “teleology.” Purpose is required in the religious view. Assuming that God created the world, and man, He must have done so for some purpose. Since God made man in His image, it is reasonable to infer that man and God are in some senses similar, and thus to suppose that God exercises desire and will similar to ours in relation to His creation. Fundamentalists especially suppose that God created the world especially for man. These kinds of confusions between social and natural law seem also to have prevented many religious believers from understanding “natural selection” the way positivist scientists did. “Selection” implied there had to be some being doing the selecting. That it was “*natural*” selection did not prevent this confusion, since, in the religious world-view we are dealing with, God is a necessary and active part of nature.

I do not intend to try to resolve this debate, but I suspect that any meaningful and valid religious system must be amenable to both the intellectualist and the symbolic approaches. Before the development of science (and this sequence is perpetuated in each individual's development from infancy), the social order was assumed to be the model for the "natural order" and for "law," and explanatory theories, even when referring to the non-social, natural world, were conceived in terms of social relations. It is thus to be expected that the symbolic statements which characterize social behavior should be extended in the effort to influence the natural world. The "symbolist" approach then becomes employed in the pursuit of "intellectualist" goals. Perhaps fundamentalism involves an emphasis on the intellectualist origins of religion and neglect of its symbolic nature. Liberal dismissals of fundamentalism as wrongly mixing two totally different categories—religion and science—may likewise fail to realize that religion was (and still is, for fundamentalists) concerned with attempts to provide theoretical explanations of the natural as well as the social world.

It may be relevant, in this regard, that strict fundamentalists (but not Pentecostals) tend to limit miracles to those expressly described in the Bible. They insist on supernaturalism, of course, but only biblical supernaturalism (granted, though, the assumption that Satan and his demons can act supernaturally, or quasi-supernaturally, provides vast scope for incorporation of additional miraculous evidence). The strict fundamentalist seeks first to explain natural phenomena in non-supernatural terms; only when this is impossible does he resort to miracle, and only if this miracle is required, or at least allowed, by the Bible (Barr 1981:238-239). Creation-science explanations of the Flood and Noah's Ark, for example, generally concede that the animals were miraculously assembled, but most or all other aspects of the Flood and the Ark are interpreted in terms of non-miraculous, "scientific" hypotheses. (The Flood itself of course was divinely ordained, but it became manifest through secondary, natural causes: e.g. rupture of hypothesized internal sources of water, and collapse of the hypothesized pre-Flood water canopy surrounding the earth.)

In his detailed presentation of the water canopy theory, *The Waters Above: Earth's Pre-Flood Vapor Canopy*, creation-scientist Joseph Dillow says that his book (which has a Foreword by Henry Morris) "assumes that the Bible is the inerrant, authoritative Word of God; therefore, it provides a framework for scientific investigation of the ancient earth" (1981:3).

For example, if Moses comments that there was a liquid ocean of water placed up above the atmosphere on the second creative day, it is necessary to infer that this liquid was arranged by God into some form that could be maintained by natural law. It would naturally turn to water vapor in view of low vapor pressure and the solar radiation, unless God supernaturally intervened and prevented it from doing so. Hence, the area of significance, cautiously applied, and with the assumption that present-day laws of nature applied then, can give us a "scientific textbook" look at the world that used to be. [1981:37]

The Creation account in Genesis is clearly a straightforward historical narrative, says Dillow; hence factual and scientific propositions can be derived from it, and scientific predictions made on the basis of it. A straightforward, "normal" exegesis of Genesis shows "that the Bible teaches the existence of a literal ocean of waters above the pre-Flood earth."

Assuming that present-day scientific laws prevailed from the Fall to the Flood, it is scientifically impossible to account for the canopy if it remained in liquid form. So unless we want to appeal to a 2,000-year miracle (Fall to Flood), we must reject the liquid ocean canopy. If, of course, the Bible gave any indication that the miraculous reigned during that era, we might be justified in appealing to some sort of miraculous support mechanism and some more miracles to remove the kinetic energy... The significance of the “waters above” for science, then, is that they must have been maintained in a way that is scientifically possible as far as known scientific law today. As we will demonstrate in the following discussion, only if the water was maintained in a vapor form would it be possible to contain it above the atmosphere and, at the same time, solve the related scientific problems. For this reason, we propose that when God lifted up the deep from the surface of the earth and arched it over the ancient atmosphere, He instantly turned those waters into vapor form (superheated transparent steam) and established them in a pressure-temperature distribution that would not require miracles to maintain. The only basis for assuming this switch is that there is no indication in the Bible that these waters were maintained miraculously, we assume that God maintained them according to the laws of nature that are known today and that He Himself had established.

We readily admit that Genesis does not teach the existence of a pre-Flood vapor canopy. Moses simply says that God placed a canopy of liquid water above the ancient atmosphere. However, if scientific laws today existed then, it is necessary that God turned that water into vapor, even though Moses does not tell us that He did this... What follows, then, is a theory—a theory based on the significance of the words of Moses for modern science—but a theory that is not explicitly taught in Genesis. Should the physical assumptions on which the following theory is based be one day disproved by scientific advance, the veracity of the words of Moses will not be affected in anyway. It will simply mean that our model of the ancient atmosphere was deficient. [1981:221-222]

BIBLE-SCIENCE HARMONIZATIONS PRIOR TO THE 1920S

A popular scheme of reconciling the Bible with science is the “Double Revelation” view: that there are two revelations from God—Nature and Scripture. One famous liberal statement of the “Double Revelation” view (it can also be interpreted conservatively) is Henry Ward Beecher’s “The Two Revelations” (from *Evolution and Religion*, reprinted in G. Kennedy 1957). The world did not come about by chance or self-development; it is indeed the product of Intelligent design and will. The Bible, God’s written Word, tells us of the development of man and the unfolding of the human mind; the other record tells us of the development—evolution—of physical matter. Beecher was pastor of Brooklyn’s Plymouth Congregational Church, the nation’s largest, and a tremendously influential voice of liberal religion. Beecher goes on to cite Dana, Mivart, Wallace, the Duke of Argyll, McCosh, and UC (Berkeley) geology professor LeConte as supporters of evolution and religion both (though not all of these supported Darwinian or purely naturalistic evolution).

Well before Darwin, Thomas Dick, in *The Christian Philosopher; or The Connection of Science and Philosophy with Religion* (fourth American edition 1829), had described the harmony between nature and God’s written revelation in the Bible. Dick declared that “there must exist a complete harmony between the revelations of his word, and the facts or relations which are observed in the material universe.” With regard to the natural world, interpretation of the Bible must yield to the authority of science: “Where a passage of Scripture is of doubtful meaning, or capable of different interpretations, that interpretation ought to be preferred which will best agree with the established discoveries of science” (1829:310). Dick stressed how necessary it is, in interpreting the Word of God, to keep our eye fixed upon his Works; for we may rest assured, that :ruth in the one will always correspond with fact in the other” (1829:310).

Dick was willing to accept the geological ages, and suggested that there may have been a long period of preparation before the appearance of man. He allows for a Gap Theory interpretation creationism (1829:310-311), and argued that the earth was designed to serve and delight man. Dick's emphasized the Design Argument as evidence of the Creator throughout his book. Since "matter exists solely for the sake of sensitive and intelligent beings," Dick was led to conclude that the glorious rings and moons of other planets indicates that these worlds must be inhabited also, by beings who must be able to appreciate this beauty and therefore celebrate and worship the Creator (1829:219). Dick's book remained popular for many years; there were editions at least as late as 1888.

Samuel Webb of Philadelphia made a curious attempt at reconciling science with a literal interpretation of Genesis in a book he published anonymously in 1854, *The Creation and the Deluge, According to a New Theory; Confirming the Bible Account, Removing Most of the Difficulties Heretofore Suggested by Sceptical Philosophers, and Indicating Future Cosmological Changes Down to the Final Consummation and End of the Earth*. Webb, who says he wrote part of this book forty years previously, proposes his novel theory in order to defend Genesis against unbelievers. His theory, he feels, provides scientific answers to the questions directed against the Bible by skeptics. Satisfactory answers must be provided because, if Genesis is false, then so are Moses's other books and so is the rest of the Bible, Webb reasons.

The Creation was the result of natural law—there was a physical and moral necessity for the Deluge; both of which phenomena must have taken place about the time and in the manner described by Moses. Neither the Creation or the Deluge was 'a miracle,' or a deviation from the known laws of Nature... [1854:6]

Webb denies that his theory, which attempts to explain Creation in terms of naturalistic rather than supernatural terms, leads to materialism, pantheism, or atheism. He insists that the six days of creation were literal 24-hour days, and occurred a few thousand years ago, in strict accordance with biblical chronology. The earth was initially molten, surrounded by vapor clouds which froze into a great luminous Saturn-like ring system. The Flood was caused by the collapse of these rings. (Saturn, says Webb, will undergo a similar Deluge when its rings collapse.) According to Newton's laws of universal gravitation and of motion, Webb predicts that the earth will shortly undergo other catastrophic (but non-supernatural) changes, which will culminate in "new heavens and a new earth." "The type of animal life is progressing; a new race of animals, as much superior to man as man is to monkey, will hereafter appear..." The sun will shrink until it appears no larger than a first magnitude star.

Webb's idiosyncratic attempt to produce a fully scientific theory preserving a literal interpretation of Genesis apparently convinced few people. His description of the ring system of the antediluvian earth, however, strikingly anticipates Vail's "Annular" or "Canopy" theory, which formed the basis of the modern creation-science Canopy Theory.

Rev. J.M. Woodman, who taught natural, mental and moral philosophy, and natural and revealed religion, at Chico Academy in California, wrote a book called *God in Nature and Revelation* (1875; an 1888 edition is subtitled *The Grand March of Time Complete*) which was intended to provide opportunity to study the Bible in connection with modern scientific discoveries. The 1888 edition includes in the same volume two other works by Woodman: *The Song of Cosmology; or The Voice of God in the Science of Nature* (orig. 1880), and *The Neptune or Water Theory of Creation* (1888). Woodman

devotes much of his book to the moral and civic lessons which are to be derived from the study of God's work in nature, Bible prophecy as a study similar and parallel to science, and the revelation of God in geology and physiology. Woodman defends the old "Neptunist" theory of earth history—that the geological strata were deposited out of the ocean—the Flood—and ridicules the "Plutonic" theory of volcanic origin of geological deposits (though both these two rival theories were already quite obsolete among geologists). Woodman compares the absurdity of supposing that the earth's interior is molten with:

that credulity of the ancients, who placed hell in the center of the earth, and made it consist of literal fire; who turned our Saviour's figures of speech into corporeal realities, made the gospel repulsive with the thought of unnecessary physical torture. [1875:283]

Volcanoes are caused by underground combustion of coal and oil, he explains. Woodman never mentions Darwin or contemporary theories of evolution, but does deny that life could have originated without creation by God. The truth about origins is revealed in the Bible; "The development theory contradicts universal observation."

The Jamieson, Fausset and Brown *Critical and Explanatory Commentary on the Old and New Testaments* (1871) is strongly accommodationist: the authors strive to accept the findings of science without, however, elevating them above Scripture. Rather than condemning scientists for being anti-religious, they accept their conclusions regarding the age of the earth and of life (they harmonize this with Genesis by advocating Gap Theory creationism.) In Jamieson's "Introduction to the Mosaic Account of Creation" in the 3-volume edition, he warns that some scientific interpretations may be wrong, however, and he shuns the full uniformitarian view. We should beware of arraying certain immature speculations against Scripture. But the "thoroughly established principles of Geological Science" are in "perfect unison" with the Mosaic account. Facts discovered by science must always agree with the Bible, as God's Divine Word cannot be contradicted by true science. Jamieson, a Presbyterian minister in Scotland, says that the Bible is concerned with religion; the province of science is "to deal with the facts drawn exclusively from the volume of nature: and these facts...will be found to prove the truth, and give strong confirmation to the statements contained in the Mosaic account of Creation." The *Jamieson, Fausset and Brown Commentary* is still highly regarded by many fundamentalists.

Edward Hitchcock, the distinguished Amherst College geologist, sought to prove the compatibility of the Bible and modern science in works such as *The Connection Between Geology and the Mosaic Account of the Creation* (1836), and endorsed Gap Theory creationism as a means of reconciling the two. In *The Historical and Geological Deluges Compared* (1837) and in his best-selling textbook *Elementary Geology* (1841, with several editions up to 1871), he showed that sedimentary deposits are far too deep to have all been caused by the biblical Flood, which effected upper layers only. In *The Religion of Geology and Its Connected Sciences* (1851), a tremendously popular book, Hitchcock eloquently argued for the unity of truth of both science and theology, as opposed to the view of separate domains of truth for each. He stresses that religion should have nothing to fear from modern science, not because they deal with separate domains, but because the truths of science must harmonize with biblical truth, since God is the author of both nature and Scripture. "Scientific truth is religious truth." It is a

perversion of science to try to use it against religion. Hitchcock chides theologians and “Scriptural geologists” who resisted or denounced modern science, and praises concordists such as Pye Smith, Hugh Miller, and the Bridgewater authors (Buckland, Sedgwick, Whewell).

The attempt to find modern scientific discoveries anticipated in the Bible, according to Hitchcock, is misguided. “God might, indeed, have revealed new scientific as well as religious truth. But there is no evidence that in this way he has anticipated a single modern discovery” (1851:4). The Bible is intended to explain religious truth, not to explain the natural world. It describes things in phenomenological language: “as they appear to the common eye, and not in their real nature”—according to “optical, and not physical truth”; the Bible also employs many of the “erroneous notions which prevailed in the earliest ages” (1851:35-6). But Hitchcock does not at all mean to deny that the Bible is divinely revealed and infallible. When we realize that it uses phenomenological language, we see that it contradicts no facts of science. Although the domains of science and religion are different, their truths are the same; when the Bible does speak of the natural world, it cannot be in error. Hitchcock explains that accusations of scientific inaccuracy in the Bible are equally misguided.

One remarkable example he discusses concerns the “resurrection bodies”: the future bodies of the dead after they are resurrected by Christ. Dead bodies decompose, skeptics argue, thus precluding physical resurrection. This is not a real objection, counters Hitchcock, because science demonstrates that the individual particles of matter are indestructible and interchangeable. Thus, our “resurrection bodies” could be reconstituted to consist of exactly the same kinds and patterns of these elementary particles, though the original body is long decomposed, and the original particles are long scattered [1851:8]. The undeniable presence, in the fossil record, of death, long before Adam’s Fall, also seems to contradict biblical teaching. Hitchcock argues that the entry of sin caused a new manner of human death: death characterized by fear and decay—death’s “sting.”

Science *could* prove the Bible to be fallible, and thus not divinely inspired, says Hitchcock—but it doesn’t. The apparent fallacies and discrepancies pointed out by skeptics do not suffice, since the overwhelming and comprehensive evidence of the Bible’s divine origin is sufficient to counter any such evidence, which must be due merely to inadequate interpretations. Hitchcock criticizes those who feel that the discoveries of science threaten the revealed truth of the Bible.

The very men who felt so strong a conviction of the truth of the Bible, that they were ready to go to the stake in its defence, have trembled and uttered loud notes of warning when the votaries of science have brought out some new fact, that seemed perhaps at first, or when partially understood, to contravene some statement of revelation. The effect has been to make sceptical minds look with suspicion, and sometimes with contempt, upon Christianity itself. It has built up a wall of separation between science and religion, which is yet hardly broken down. For notwithstanding the instructive history of the past on this subject, although every supposed discrepancy between philosophy and religion has vanished as soon as both were thoroughly understood, yet so soon as geology began to develop her marvelous truths, the cry of danger to religion became again the watchword, and the precursor of a more extended and severe attack upon that science than any other has been experienced, and the prelude, I am sorry to say, of severe personal charges of infidelity against many an honest friend of religion. [1851:29]

Geology especially suffers from accusations of this sort, in large part because it is a new science, and hence particularly suspect. But these critics are ignorant of geology, says

Hitchcock. Their completely unfounded fear that scientific discovery will undermine Scriptural infallibility leads them to attack geology and try to demonstrate its falsity, yet in their ignorance of the subject they totally misrepresent the claims and theories of geology, substituting for them their own “wild and extravagant hypotheses” (1851:16-7). He recommends the proper teaching of geology to quiet the unfounded fear that the lessons of geology contradict the lessons of theology.

Far from being a danger to revelation, geology is the science which most clearly and directly demonstrates the benevolence and personal intervention of God. Hitchcock stresses the uniformity of law and of natural processes: the “same general laws appear to have always prevailed upon the globe, and to have controlled the changes which have taken place upon and within it.” But he also argues that geology, more than any other science, proves that God has intervened directly to guide and alter earth history. “No other science presents us with such repeated examples of special miraculous intervention in nature.” The successive sets of organisms which have inhabited the earth were separate miraculous creations, not metamorphoses from previous species. Volcanoes, glaciers, and other destructive phenomena cause short-term damage but have been necessary to render the earth productive for mankind. These beneficial long-term processes have caused the earth to be perfectly adapted to man.

Hitchcock urges the study of geology so that Christian apologists would be better armed against skeptical arguments. Knowledge of geology would help Christians to refute the seemingly plausible arguments for materialism and for the “development hypothesis” (that is, evolution). Geology shows that the truths of science and of the Bible are one. “Soon shall the horizon, where geology and revelation meet, be cleared of every cloud, and present only an unbroken and magnificent circle of truth” (1851:70).

In *The Panorama of Creation* (1908), David Holbrook also presents what he calls a “phenomenal” interpretation of Genesis. The first chapter of Genesis is literature, not science. It is not a narrative of origins; the beginnings it describes are of “appearance rather than essence.” Its *propositions*, however, are factual rather than merely poetic, and there is a profound harmony between science and Genesis. Genesis deals with terrestrial matters in a pictorial fashion, portraying a panorama of creation in six divisions, like a series of paintings of geological landscapes. It presents a plain account of the visible progress of creation (after a general announcement of God’s initial act of creation)—the preparation of the earth for man—as it would appear to an ordinary human observer. By using the language of appearances, the Bible avoids dependence on particular scientific theories. God’s successive fiats and anthropomorphic actions in the creation ‘week’ are “rhetorical” devices employed to give vividness to the account. Holbrook advocates a form of Day-Age creationism, but argues that his “phenomenal” interpretation avoids the chronological difficulties posed by strict Day-Age creationism. His scheme is based on the then-fashionable “nebular theory” of cosmic evolution; he shows that this theory, and the geological record, is in perfect concordance with the Genesis account, and argues that such perfect harmony is statistical proof of its truth.

Hugh Miller, the Scottish stone-mason-turned-geologist, accepts a form of “double revelation,” as evidenced by the title of his last book, *The Testimony of the Rocks; or, Geology in Its Bearings on the Two Theologies* (1857). Most of the book concerns the relationship between the “Two Records: Mosaic and Geological,” and how

they can be reconciled. Miller especially praises Chalmers' courageous and informed efforts at reconciliation.

Miller was, relatively speaking, a liberal. One of his chapters is devoted to refutation of those he calls the "Anti-Geologists": those conservative religionists who denounce geology as a satanic undermining of the authority of the Bible. The term "anti-geologist" applies to several of these reactionaries who Miller describes, but is a response in particular to an anonymous work by an Anglican clergyman titled *A Brief and Complete Refutation of the Anti-Scriptural Theory of Geologists* (1853). The author of that work argued that God created fossils on the first day as models or archetypes "to typify or foreshadow the living plants and animals that were to be called into existence a few days later" (Miller 1857:397-8). The frozen mammoths were created as such under the ice; unlike other fossils, they were not then transmuted into stone. Other, more bizarre, fossils were "created on purpose to silence the HORRID BLASPHEMIES of geologists." Miller notes with evident amusement that the existence of coprolites (fossil dung) infuriated this "anti-geologist," who tried to blame them on Satan.

Demonstrating that the "anti-geologists" pervert both the biblical account, by their interpretive contortions, as well as geology, he says of one:

It need not surprise us that a writer who takes such strange liberties with a book which he professes to respect, and which he must have had many opportunities of knowing, should take still greater liberties with a science for which he entertains no respect whatever, and of whose principles he is palpably ignorant. [1857:414]

Miller argues forcefully for acceptance of the geological ages demonstrated by contemporary science, and for the succession of groups of organisms through these ages, as fully compatible with the biblical account. Though relatively liberal, he does firmly dismiss the "development hypothesis" as "unsupported by a shadow of evidence" (remember, however, that this was written two years before Darwin's *Origin*).

Alexander Winchell, the geologist and science professor ousted by the fundamentalists from Vanderbilt, similarly argued for a "liberal" concordist approach to Genesis and geology. One of his books in fact is titled *Reconciliation of Science and Religion* (1877). Winchell, like Miller, argued for the Day-Age interpretation of Genesis. With his extensive knowledge of paleontology, he demonstrates that many forms have emerged and become extinct, that the Flood could not have deposited all the earth's sedimentary strata, and that the earth has indeed changed considerably since Creation. Man first appeared at the end of the Ice Age, which was late in the geological record, but well before Adam, according to Winchell.

George Frederick Wright, the eminent Oberlin College geologist, taught both geology and theology, and was in fact officially professor of the "harmony of science and revelation." In works such as *Scientific Aspects of Christian Evidences* (1898) and *Scientific Confirmation of Old Testament History* (1906) he strove to reconcile Genesis and geology, and prove that science supported the Bible. He argued for Day-Age creationism and allowed for limited evolution, but argued strongly that evolution could not explain the origin of life or of humans, which must have been the result of divine intervention by the Creator God.

Though those authors of *The Fundamentals* who were trained in science, including Wright, tended not to object strongly to evolution, other, non-scientific authors

in the series did. Rev. Henry Beach insisted that Darwinism contradicts the Bible, and thus that if it is taught as scientific truth, it will inevitably undermine the religious authority of the Bible.

We cannot depend on the Bible to show us 'how to go to heaven' if it misleads us as to 'how the heavens go' regarding the origin, nature, descent and destiny of brutes and man. Darwinists have been digging at the foundations of society and souls... [Beach 1912:37]

This is a shift in attitude from that of the concordists and harmonizers who were willing to modify their interpretation of the Bible in order to accommodate science. These new fundamentalists demanded that science must conform to the Bible, and not the Bible to science.

FUNDAMENTALIST REJECTION OF COMPROMISE HARMONIZATIONS

In *Back to the Bible* (1931; originally published in 1916 as a pamphlet), George McCready Price urged a return to primitive Christianity, calling for a second Protestant Reformation. He declared that Christians had tried, and failed, to make Christianity harmonize with biology by various compromises, and that it was now time to insist that biology conform to Christianity.

The problem confronting the Reformers of the sixteenth century was to vindicate the Bible as against ecclesiastical tradition; the problem for the Reformers of the twentieth century is to vindicate a despised and discarded Bible against so-called science already grown arrogant and dogmatic...

It would seem as if every possible method of compromise has been tried, with invariable failure and confusion. Why not take the Mosaic account of Creation and the Deluge at their face value, and examine the claims of the popular Evolution Philosophy in the light of primitive Christian principles, without any compromise whatever? [1920:5]

Price rejoiced that the truths of science were now proving the Bible true and demonstrating the harmony between God's two books. Were it not for the beclouding influence of sin, he explained, God's Book of Nature could be read as clearly as His later written revelation in the Bible. As a result of the Fall, the lessons from science were harder to interpret, but science properly read still resoundingly vindicated Genesis.

"There can be no real scientific understanding of origins," however. Science does, though, rule out evolution and support the biblical account. In *Q.E.D.: Or New Light on the Doctrine of Creation* (1917), Price confidently asserts that although science can tell us nothing about the supernatural processes used during Creation, modern scientific discoveries have established the doctrine of Creation like "a mathematical Q.E.D." Price stressed that, contrary to what uniformitarian evolution assumes, matter and life

must have come into existence at the beginning by laws and methods not now operating anywhere on earth. Not Uniformitarianism and Evolution, but Creation, is what modern science is teaching us by facts so large and fixed that there is no prospect of their ever being overturned by any fresh discoveries. For every additional law in the realms of the physical and the biological sciences only renders more secure these cumulative proofs that the beginnings of things must have been different, not merely in degree, but in kind, from those "natural" processes by which the order of nature is now sustained. [1931:153]

We “must simply follow the record of Genesis regarding [creation], which must ever lie beyond the reach alike of man’s guessing and his research.”

Harry Rimmer, in *The Harmony of Science and Scripture* (1936) and his other works, similarly defends the absolute scientific inerrancy of the Bible (though his interpretation of the ‘literal’ sense of Genesis, unlike Price’s, allows for Gap Theory rather than recent creationism).

Militant fundamentalist Gerald Winrod, founder of the Defenders of the Christian Faith, proclaims in *Science, Christ and the Bible* (1929) that Christianity and the Bible are scientific. In a section titled “Christianity is Scientific,” Winrod says:

The scientist deals with natural laws. The Christian deals with spiritual laws. Christianity is more than dogma and theology—it is demonstrable truth. It rests upon certain immutable, spiritual verities and laws which are as unerring as the laws of mathematics. [1929:34]

Scientific laws are not matters of opinion; they cannot be broken. Comply with them, and certain results definitely follow; ignore them, and suffer the consequences.

Likewise, the Bible says that unless you repent, you will perish. That statement is science; not sentiment. Paul was scientific when he said, “Prove all things.” [1929:35]

The Bible, “the greatest textbook ever written,” is replete with facts “which can be scientifically proved.”

All true science, and Christianity, the one true religion, starts at the same place with the first four words of the Bible—“In the beginning God.” A godless science has no place to begin. [1929:28]

God wrote two books—the Book of books and the book of nature. There is no discord between the two books. [1929:32]

Between the proved facts of science and the truth of Christianity there is perfect harmony, but between the guesses of scientists and the dogma of religionists there is discord... Let the men of science confine themselves to what they can actually prove and demonstrate about the natural world, and let religionists confine themselves to the spiritual verities of our religion, and science and Christianity will go hand in hand. [1929:31]

The fundamentalist attitude expressed here is that “true” science cannot conflict with the Bible. The concordist or harmonizer affirms this also, but—unlike the fundamentalist—is willing to reinterpret scripture in order to conform to science. The fundamentalist insists that science must conform to scripture.

Evolution, says Winrod, is—in contrast to science—a philosophy which “purports to reduce everything to natural law.” In so doing, it reduces the world to a “physical, heartless, soulless machine in which man is merely a broken cog.” “When the theory of evolution hits the rocks of geology, it goes to pieces.”

All organisms reproduce within the charmed circle of the species.... If the transmutation of the species were true, we would see about us all manner of hideous monstrosities. There would be creatures with heads like men and necks like giraffes and bodies like horses. Species would be all mixed up, but such is not the case, because each type of life reproduces according to kind. [1929:137]

Theodore Graebner, a member of the Religion and Science Association of the 1930s, denies that his book *God and the Cosmos: A Critical Analysis of Atheism*,

Materialism and Evolution (1932) is a work of theology. He concedes that he is indeed a theologian, but insists nonetheless that he is demonstrating that science proves theism true and evolution false. To support this, he fills his book with scientific quotes from anti-evolutionist, anti-Darwinian, and Bible-believing scientists (and, as in most creation-science books, these categories are run together and confused).

“Biblical Concordism, or the effort to reconcile the Bible and science, has utterly failed.” Such is the declaration of Giorgio Bartoli in *The Biblical Story of Creation: In the Light of the Recently Discovered Babylonian Documents* (1926). Bartoli, an Italian, was a professor of chemistry and geology, and director of a mine in Sardinia. A strong proponent of Gap Theory creationism, he insisted on upholding a literal reading of Genesis and resolutely opposed evolution for contradicting the Bible. His approach is primarily theological, though he includes scientific and archeological arguments; he defends supernaturalism and Genesis against the bitter attacks of what he refers to as “infidel science.” “With Genesis stands or falls the whole fabric of Christianity,” he declares in typical fundamentalist style. “The evolutionists, of course, reject the first chapters of Genesis because these flatly contradict their beloved theory...” If man evolved, then God is a liar. Man, therefore, did not evolve.

The missing link between man and beast is still missing, and it will never be found. Fossil man does not exist, and it is useless to look for him. Infidel anthropology is no science at all... Man was created by God, where and when the Bible tells us.

Another very strong presentation of Gap Theory creationism, *Science and Truth* (1940), by L. Allen Higley, the Wheaton professor and president of the Religion and Science Association, likewise emphasized the dependence of science on the Bible. “The Bible is the one true foundation on which all true science must finally rest, because it is the one book of ultimate origins.” Any scheme which contradicts the Bible—and evolution is the prime offender—is “necessarily false.”

A.I. Brown, the Vancouver physician-turned-evangelist, gives a fair summary of the fundamentalist position regarding the relationship of science to the Bible in his booklet *Evolution and the Bible* (undated:3-4):

There is no conflict between science and the Bible because both are Truth, but undoubtedly, there is direct antagonism between the Bible and the interpretations of certain scientists who deny the literal value of the Genesis Record.

The statement is made that the Bible was never intended to teach science. The Author of the Book makes no such admission, and it is fair to conclude, in the absence of any evidence to the contrary, that wherever the Writer touches a scientific subject He gives us Truth without any admixture of error.

To deny accurate scientific knowledge to the writers of the Bible is to argue in the face of irrefutable facts. The science of Genesis, to take the most disputed Book of the list, is absolutely in accord with the findings of the most recent and most reliable investigation. In only one respect does it displease the “modern mind,” and that is in its unequivocal statement of Creation as the method used by God to bring life and life-forms on the earth. And since there have never been discovered any facts which make Creation impossible we have no right to dispute it until the alternative theory can produce more than supposition. In spite of tireless and long-continued search for evidence which might prove it false, by learned and skilled enemies of this Record, evolution remains, not only “unproven and unprovable,” but impossible because directly opposed by known facts.

God reveals himself both in nature and the Bible, affirms Paul Zimmerman in Darwin, *Evolution, and Creation* (1959). “Neither form of revelation can possibly

contradict the other.” Scientific truth, however, is relative and changing (remember the Fall), while the Bible’s truth is absolute (although it may be misinterpreted). “From a Christian point of view all forms of naturalism must be rejected,” says Wilbert Rusch in the same volume. In a later volume edited by Zimmerman, *Creation, Evolution, and God’s Word* (1972 [1966]), Richard Korthals concedes that Darwinism is correct if we accept naturalism; as a Bible-believer, however, he must reject this assumption.

One prominent evangelical scholar, Bernard Ramm, criticized both strict creationism and the fundamentalist Bible-science attitude as well as materialistic evolution, arguing that the Bible is neither full of scientific error nor filled with modern scientific predictions and theories. Ramm, who has a philosophy Ph.D. from USC and studied under Barth, was active in the ASA, and led its resistance against the young-earth creationism and Flood Geology espoused by Morris, Lammerts and other members during the 1950s. In *The Christian View of Science and Scripture* (1954), written before these ASA strict creationists initiated the modern creation-science movement, Ramm points out the scientific naivete of their Flood Geology predecessors (Price, Rehwinkel, Nelson, H. Clark) and other fundamentalist Bible-scientists.

Ramm’s book consists of lengthy chapters describing Bible-science and other evangelical Christian interpretations of astronomy, geology, biology, and anthropology. It is an excellent reference for various interpretations regarding the relations between science and the Bible. Ramm himself argues that the language of the Bible is “phenomenal,” using popular, not technical, terminology, expressed in the terms of the cultures of the time in which it was written. The Bible deals with the appearance of things and events, and eschews scientific theorizing. Making a distinction between strict creationist fundamentalists and other evangelical Christians, Ramm emphasizes that not all evangelicals believe in recent creationism. Though most oppose evolution, some religiously orthodox evangelicals support theistic evolution. “It is not true,” he continues, “that evangelicals believe that the last word on specific details of physics, astronomy, chemistry, geology, biology, and psychology is to be found in the Bible.”

Contrary to fundamentalist Bible-scientists, Ramm says that “Christianity is a religion and not a science.” Evangelicals believe that the Bible provides a supernatural and historical background for all investigation, but this does not require that theologians dictate to scientists what is proper science or not.

1. It is impossible to separate Christianity from history and Nature. The hope of some to relegate religion to the world of pure religious experience, and science to the world of physical phenomena, may suit some religious systems but not Christianity. The historical element alone in the Bible is too dominant to permit this treatment, as is the repeated reference to creation. ... Creation and history are indispensable to a loyal evangelical theology...
2. The Bible does not teach final scientific theory, but teaches final theological truth from the culture-perspective of the time and place in which the writers of the Bible wrote. We do not expect modern science in its empirical details in the Bible...
3. The Biblical statements about Nature are non-postulational or phenomenal; and its statements are free from the grotesque and the mythological... It is free from the absurd views about Nature prevalent among the Greeks and Romans. Scripture is committed to no theory of the solar system nor the structure of matter... [1954:244]

“The Bible *Is* a Textbook of Science,” states Henry Morris in a chapter title of one of his earlier works (*Studies in the Bible and Science; or Christ and Creation*, 1966). In his recent 516-page compendium of Bible-science *The Biblical Basis for Modern Science*

(1984), he says: “The Bible is indeed a book of science, as well as a book of history, literature, psychology, economics, law, education, and every other field,” even though it doesn’t use technical, scientific jargon.

How could [anyone] trust the Bible to speak truly when it speaks of salvation and heaven and eternity—doctrines which he is completely unable to verify empirically—when he is taught that Biblical data that are subject to test are fallacious?

Similarly, John Warwick Montgomery states that “if the Bible were faulty in secular matters, it would also be faulty in spiritual things” (1986:121).

The Oldest Science Book in the World is the title of a (1984) book by Charles V. Taylor, an Australian with a Ph.D. in linguistics who advocates strict young-earth creationism and Flood Geology. Genesis is straight history, says Taylor, not religion. And only history—not science—can tell us about the past. The Bible, however, harmonizes perfectly with science. God wrote the opening verses of Genesis; Adam wrote the next few. Evolution, and Big Bang cosmology, are similar to folklore: they are “science fiction,” in contrast to the straightforward factual truth of Genesis. “Miracles aren’t anti-scientific,” Taylor assures us.

Once we reject the Bible at one point we become judges of the Bible and can pick and choose which points we accept or reject. ... If man arose from the animals, the it’s hard to see how sin could be the result of the Fall and hard to appreciate the value of Jesus’ death. [1984:126]

Oscar Sanden, a Presbyterian minister and dean of Northwestern Schools in Minneapolis, shows that science is proving the Bible correct in every field, in his book *Does Science Support the Scriptures?* (1951). A Day-Age creationist, Sanden argues that the sequence of life on earth shown by science is “virtually identical” to the Mosaic account, and presents many Bible-science examples. According to Sanden, the Bible refers to telegraph communication, astronomical parallax, atomic theory, cosmic rays, and other modern scientific discoveries.

Why should not the great Bible schools and seminaries, the great Gospel centers, the Bible-preaching pulpits of the land, be known as the custodians and users of true science, for is this not the great book of God in nature whereby He confirms the Book of His inspired Word, the Bible? [1951:24]

Sanden followed this book with a pamphlet describing obstacles to evolution, *Twelve Bridges No Evolutionist Has Ever Crossed* (1961).

In his *Encyclopedia of Bible Difficulties* (1982), Gleason Archer describes the proper approach for the biblical inerrantist. Archer is a prominent member of the International Council on Biblical Inerrancy (ICBI), and acknowledges assistance of ICBI in this book, which is an apologetics compendium of Bible passages and topics alleged by skeptics to present problems for the inerrantist believer. In his “Recommended Procedures in Dealing With Bible Difficulties,” Archer begins: “Be fully persuaded in your own mind that an adequate explanation exists, even though you have not yet found it.” Either the Bible is inerrant, or it contains mistakes. Since it is inerrant, any apparent mistakes or contradictions must have some adequate explanation. Where archeology or history seems to contradict the biblical account, the pagan record, not the Bible, must be in error (1982:15-17). Archer, who is an old-earth creationist, presents a non-literal (but strongly inerrantist, of course) interpretation of the six-day creation of Genesis.

Hominids may have existed long before Adam, he says, but not humans. The inerrantist must assume, however, that Adam and Eve were “literal, historical, created individuals.” Archer cites a number of creation-scientists and other scientists critical of evolution. (He also discusses, as evidence against evolution, the analysis of a wood sample found in the Cretaceous deposits of Paluxy which Rainer Berger, of UCLA’s C-14 lab, dated at 12,800 BP [1982:63-4].)

Walter Lang, the founder of the Bible-Science Association, and indefatigable full-time “Creation Evangelist” for the past quarter-century, says, in *The Mythology of Evolution* (1968): “In Scripture we find the absolutes which are not found in science.” “There are no absolutes in nature due to contamination of sin throughout the universe” (Evangelism Program [n.d.]).

“The Bible Is True!,” declares Edward F. Hills in his booklet *Space Age Science* (1979 [1964]). Hills, who went to college at Yale and got a Th.D. from Harvard, says that we must begin any investigation not with facts of nature and history, but with God and His revelation. In another booklet, *Evolution in the Space Age* (1967), Hills appeals unabashedly to the Bible for proof of his assertions, but also includes many scientific references as supporting evidence. He presents the standard creation-science arguments, advocating strict creationism and Flood Geology.

“The Bible is an accurate description of the universe. Science will not contradict the Bible,” declares John Tiner, a high school science and math teacher. Tiner, in his book *When Science Fails* (1974), “explodes the naive assumption that science has all the answers and challenges the reader to think independently with a Biblical faith.” The propositions and facts of the Bible has been tested for four thousand years, and have never been wrong. “Is there a science book that will be completely accurate four thousand years from now?” Notable among the failures of science is its refusal to listen to anyone who challenges the entrenched dogma of evolution, even though there is “solid evidence which refutes the view that man developed from lower creatures.”

Jack Wood Sears, head of the biology department of Harding College (now University), a Church of Christ school in Arkansas, writes about “Science, the Bible, and Evolution” in his 1969 book *Conflict and Harmony in Science and the Bible*. Largely a warning about the danger of scientism presented in a calm, reasoning tone, Sears explains that evolutionist explanations are fraught with speculation, and urges consideration of the alternative explanation presented in the Bible. Science changes, but the ultimate truth of the Bible is immutable. Though he notes problems with radiometric dating, Sears is willing to provisionally assume that the standard geological chronology is correct.

Sears wrote the introduction to *A Scientist Examines Faith and Evidence* (1983) by Don England, a chemistry professor at Harding University. England also affirms that there is no conflict between nature’s truth and the Bible’s—though often conflict between theories. The Bible contains no scientific error; Genesis is scientifically and historically accurate. However, England argues, we should not consider our fallible interpretations of Genesis as absolute truth. It follows from this that attempts to harmonize the Bible with science are misguided. England refutes most of the common Bible-science “proofs” which abound in fundamentalist literature, and demonstrates that most of the Bible passages employed as evidence for Bible-science are poetic (though he does accept a few as literal).

Faith, he says, is not dependent on science, which changes. He also argues that Bible interpretations based on silence, such as Gap Theory creationism, or based on loose and unwarranted exegesis (Day-Age creationism), cannot be proven. The Bible doesn't give us the age of the earth, and there is no biblical reason to insist upon Flood Geology or recent creation (though the earth may be quite young). "Genesis One reads like history, and it is taken to be factual, yet not exhaustive, account of creation events." The Bible does, however, clearly refute evolution:

There is no way, allegorically or otherwise, by which the Genesis account of the origin of the first man and the first woman can be brought into harmony with modern theories on the origin of man as expressed in general biological evolution. [1983:156]

Russell Maatman, a chemistry professor and natural science chairman at Dordt College, a Reformed Fellowship school in Iowa, agrees that the Bible does not contain allusions to modern scientific discoveries and inventions, and dismisses most such Bible-science claims. In *The Bible, Natural Science, and Evolution* he says that science should not be used to prove the Bible, but he does strongly affirm the absolute truth and inerrancy of the Bible. Science and the Bible are not equal sources of truth; the Bible must always be accorded primacy.

Throughout the evolution discussion in this book, an attempt is made to discover first what the Bible teaches. This procedure should be followed in the study of any question upon which the Bible sheds light. If this is not done, and one uses another source first, he might sin by contradicting what God states in the Bible. [1970:75]

Maatman, who agrees with scientific evidence which shows the earth to be billions of years old, advocates Day-Age creationism—though, he adds, "there is no doubt that each creation event was instantaneous" and *ex nihilo*. The origin of life from non-life would be as miraculous as divine creation, he argues, and the evolution of animals and plants is, simply, "not proved." "The Bible may allow for a miraculous conversion of one animal or plant into another animal or plant, but it does not allow for the miraculous conversion of an animal into man" (1970:155).

This conservative Reformed tradition was earlier expressed by Enno Wolthuis, a chemistry professor at Calvin College in Grand Rapids, Michigan, in *Science, God and You* (1963). "This book sets forth our view of the way in which one can profess the Christian faith and at the same time welcome and promote scientific progress." Wolthuis reviews the history of natural science, stressing the contribution of Calvin and other Reformers, and criticizes the temptation fostered by modern science to rely solely on naturalistic explanation. In discussing various positions regarding the relation of science and faith, he rejects the "mechanist" view, the "dualist" view (the assumption that science and faith are unrelated), and also the "ascetic" view (the denial of the physical world). Wolthuis stresses the sovereignty of God over His creation, and says science is a "Christian duty" (referring to God's command to have "dominion over the earth"). However, it is not clear what the Bible teaches about "the scientific significance of the Genesis account." He points out that Genesis is "not a detailed account of creation in scientific language." What is clear is that "any theory of origins is false which fails to anchor this universe in the will of God."

All we can know about God's work of creation must be supplied by God Himself in His Word. That is our only source of information regarding the fact of creation. The doctrine of creation is the major one with respect to the relation between the Christian faith and science. That is to say, once a person accepts this doctrine on faith, there are many logical consequences for his scientific attitude. [1963:86]

Science cannot discover truth independently; it must begin with biblical truth.

Robert J. Ream, in *A Christian Approach to Science and Science Teaching* (1972), agrees that the Bible must be given primacy even in science. Ream, a teacher at a Christian academy, argues against the Thomistic attempt to harmonize rationalism and revelation. Scripture is "foundational" for science; reason must become the "servant" of revelation. Truth is not religiously neutral: there is "no truth that is not Christian." The purpose of science is to discover God's plan of creation. Sin and death entered the world through Adam's Fall, resulting in a deterioration of nature. This biblical view flatly contradicts evolution.

"Genesis and geology, I have discovered, have exactly the same testimony," writes Bernard Northrup (n.d. [1975]), who pastors a Redding, California church, and has also studied geology (he has led several BSA Grand Canyon tours). He first proposed his own scheme of harmonization in 1968, and has been developing it ever since. (Interestingly, Northrup's harmonization, which involves multiple catastrophes, is significantly different than the standard Price-Morris Flood Geology model.) Northrup insists that the geological record can be fully and accurately aligned with the biblical account. But, he cautions, the harmonization must be done in this direction—i.e., science fitted to the Bible—and not vice-versa. Natural revelation (science) is a corollary—and only a corollary—to the Bible.

In *Does Christian Faith Depend on Scientific Fact?* (1971?), Robert Whitelaw, a professor of mechanical and nuclear engineering at VPI, strongly rebutted the argument that Christian faith cannot be destroyed by science. Taking a strong fundamentalist approach, he insisted that any fact of science could indeed falsify the Bible. The Bible must be rejected if any fact or event in it is false. Christianity is built on facts, he asserts; it is scientific. "In short, Christian faith is rooted in actions that are reported in a Biblical record that satisfies all the canons of scientific evidence." If the fact of Adam and Eve's literal creation and existence, or Noah's Flood, or any other statement in the Bible is denied, then so too is the Resurrection. From this it follows that all new findings or theories must be scrutinized in light of the Bible; if they do not conform to Scripture, they must be rejected. Evolution fails.

One of the authors of the 1986 ASA booklet *Teaching Science in a Climate of Controversy* is John L. Wiester, who has a business degree from Stanford, where he taught historical geology. Now owner of a cattle ranch in California, he was president of a company making equipment for the nuclear and aerospace industries. The ASA booklet incorporates much material from Wiester's earlier book *The Genesis Connection* (1983). Wiester was converted recently to Christianity by his wife. In his book he acknowledges the assistance of Preston Cloud, UC Santa Barbara paleontologist. (Cloud, who has debated creationists, has since written his own, purely naturalistic account of earth history, *Oasis in Space*). Wiester insists that science armonizes perfectly with the Bible. He accepts the entire volutionary chronology of the universe and the earth, dopting a Day-Age interpretation, and convincingly explains ating methods which prove the earth is ancient, but argues hat certain events are explainable only as creative acts by God.

“Each creation command in Genesis correlates with a scientific puzzle or gap.” Genesis contains a “step-by-step account of changes that God made in the geologic and biologic forms on the earth” to fulfill God’s plan, but it does not describe how these changes occurred. Other than the specific acts of creation declared by Genesis, these changes may have occurred via evolution.

The question is not creation versus evolution. The real question, the truly vital issue is Creator versus no-creator. We owe our existence either to the creative acts of God or to random chance. [1983:13]

Science is moving ever closer to the “unchanging biblical pattern,” Wiester says; the theory of punctuated equilibrium especially brings science “remarkably close to the biblical view.” His unashamed espousal of a God-of-the-gaps view is curious, since such a view is generally felt to be tantamount to conceding the superiority of science over religion. This bothers Wiester not at all. The truth of creation and of Christianity for him is “presuppositional” and thus not subject to falsification by science.

Christianity presupposes God is true. Thus Christians should not expect science to prove God or to give answers to the meaning and purpose of life. To expect science to answer such questions would make God and phenomena subject to the limitations of the human mind. We should expect, however, that as science accurately explores the wondrous mysteries of God’s creation, ultimately the weight of evidence will be in harmony with Scripture. The results and phenomena of creation which are all around us will force us to face the reality of creation. [1983:36]

Science does not support the “chance,” “mechanistic” origin of life, and the lack of transitional forms in the fossil record (such as in the transition to multi-cellular forms) refutes Darwinian evolution. The public is being “duped” by a “hominid hoax”: the claim, that is, that humans are descended from fossil hominids.

NOMOTHETIC CREATION AND FINAL VS. SECONDARY CAUSATION

George Fairholme, the Scriptural Geologist, had insisted in 1833 that contemporary geological theorists erred by addressing only “secondary causes,” and he criticized Lyell’s uniformitarian theory as a prime example of this unfortunate obsession by theoretical scientists with secondary causes. This criticism illustrates a major difference in outlook between creationists and proponents of modern, positivist science.²³ By Darwin’s time, many scientists, such as Lyell, were already “proto-positivists” who concentrated on secondary causes in their scientific explanations. Geology was the first science to largely abandon theologically-based explanations and rely on positivist explanations (except in theoretical works and works intended for the public) (Gillespie 1979:11). Even Edward Hitchcock, the distinguished Amherst College geologist and harmonizer of the Bible with science, though he defended biblical special creation, explained that the geological record was the result of secondary causes (1851).

Until Darwin’s time, science was based on a markedly religious conception, and this religious basis was inextricably woven into the fabric of science. Darwin, argues

²³ This is an aspect of Bacon not emulated by creationists. Bacon had argued that it was through study of these secondary causes that his new method of science could result in the mastery of nature for the benefit of man, rather than the medieval tradition of study of nature primarily for the moral lessons it was held to provide (Toulmin and Goodfield 1965:107-109).

Neal Gillespie in *Charles Darwin and the Problem of Creation* (1979), was a central figure in the process by which science was transformed into a wholly positivistic enterprise, and by which religion in turn came to be accepted—except, significantly, by fundamentalists—as something existing apart from science.

The struggle between Darwinian theory and the creationism advocated by most scientists of the time was not so much a war between religion and science as between two different views of science: the traditional one, which retained a religious basis, and the new positivist one championed by Darwin, which removed religion from the domain of science. Gillespie, inspired by Foucault, calls these rival views of science “epistemes” (similar to Kuhn’s notion of paradigms): “communal presuppositions about knowledge and its nature and limits.”

Gillespie argues that Darwin played a key role in the replacement of one scientific episteme with another. In Darwin’s time the two epistemes co-existed in uneasy tension, and many scientists sought intermediate positions, moving in the direction of the new positivist episteme, but unable to make a complete break due to the strong tradition of the theologically-based episteme.

The advent of evolution in natural history was the consequence of a change in the way in which science was thought about and practiced. The old scientific episteme, creationism, which mixed the Newtonian nomothetic and the Baconian inductivist traditions from the physical sciences with biblical theology and a type of philosophical idealism, had sanctioned, in the idea of special creation, or so it appeared from the new positive perspective, a pseudo-paradigm that was not a research governing theory (since its power to explain was only verbal) but an antitheory, a void that had the function of knowledge but, as naturalists increasingly came to feel, conveyed none. This discontent with special creation was the result of a subtle and gradual shift in the epistemic foundations of natural history toward positivism. (1979:8)

Many scientists in Darwin’s time were becoming skeptical or dissatisfied with aspects of the old episteme of science in which religion was an integral and necessary part of science. The special care Darwin took to refute special creation was due to his realization that it was the foundation of the old episteme. Although many scientists had already abandoned miraculous (strict) creationism, they were unable to move all the way to the positivist view, since they still retained basic elements of the old episteme. This is why, says Gillespie, Darwin used theological arguments in the *Origin* as well as scientific arguments, and why he attacked the idea of special creation so tenaciously. Shortly before publication of the *Origin*, Darwin said to Lyell: “I am deeply convinced that it is absolutely necessary to go the whole vast length, or stick to the creation of each separate species” (quoted in Gillespie 1979:155).

Most scientists, even if they had taken steps towards the positivist view, were still more or less influenced by the traditional biblical conceptions and the imagery of the old religiously-based episteme. They didn’t interpret Genesis literally, but they nevertheless assumed that the Flood, in some form, was real, that man was somehow a unique and separate creation, and that the six creation days could somehow be reconciled with the scientific record (1979:47). Many of these scientists condemned biblical literalism but could not relinquish the belief that the biblical account could still be squared with science: that they both somehow spoke of the same things.

Special creation was the direct involvement by God with creation of new forms: it could either be direct and miraculous (strict creationism), or—an intermediate view favored by many scientists in Darwin’s time—it could result from some unknown but

lawful process. This “lawful” or “nomothetic” creationism, like positivist science, rejected miracles as explanation, and appealed to “natural” as opposed to miraculous causes, but still retained the concept of final theological causality. Nomothetic creationists believed that God intervened directly to create new species in a mysterious but lawful manner.

Sir John William Dawson rejected evolution in part because it “removes from the study of nature the ideas of final cause and purpose” (1887), though he argued that this final cause need not involve special miracles “contrary to or subversive of” ordinary natural law; i.e. nomothetic creation. Evolutionists, he said,

always refer to creation as if it must be a special miracle, in the sense of a contravention of or departure from ordinary natural laws; but this is an assumption utterly without proof, since creation may be as much according to law as evolution, though in either case the precise laws involved may be very imperfectly known. (1887:339).

Dawson argued for lawful successive creations. He claimed that the Bible avoids all theorizing, both mythological and scientific, and merely stated the hard facts concerning the natural world in unbiased phenomenological language, disregarding secondary causes (1882).

Some nomothetic creationists became dissatisfied with the notion of direct divine intervention, and assumed that new species arose by means of completely natural processes that were, however, somehow initiated by God, and were governed by laws which were either totally unknown or unknowable. Others, such as Sedgwick and Hitchcock, remained opposed to nomothetic creationism, fearing that by making God’s involvement less direct, it opened the door to materialism and atheism. St. George Mivart, who became one of Darwin’s most persistent and troublesome critics, advocated a kind of saltationist evolution (he had been excommunicated from the Catholic church for his evolutionism), and criticized natural selection relentlessly, arguing that it could not account for evolution. Life developed through natural law, he said, not by special creation—but not by natural law alone. In *On the Genesis of Species* (1871), a critique of Darwin’s *Origin*, he advocated what he called “specific genesis”: species are not fixed, but have an innate force capable of sudden generation of new species as “harmonic self-consistent wholes.” Nature’s harmony and order proves divine design and purpose. God, in the initial creation, established laws which pre-ordained all subsequent developments and adaptations. Darwin thought that Mivart’s profoundly non-Darwinian evolutionism, based as it was on the traditional religious foundation, was really a disguised form of creationism.

Advocates of providentially designed evolution such as Mivart, Richard Owen, and the Duke of Argyll “combined the purposeful manipulation of the laws of nature envisioned by the nomothetic creationist with the progressively unfolding divine plan of idealism and the aversion to direct intervention of positivism” (Gillespie 1979:88). In the notorious *Vestiges of the Natural History of Creation* (1844), Robert Chambers affirmed an initial divine creation. What made him a providential evolutionist rather than a nomothetic creationist was that he denied that God had to keep intervening in the subsequent development of organisms after the initial creation. The transmutation of species, argued Chambers (anonymously), proceeded entirely by natural laws, unaided by any further direct involvement by God.

Paleontologist Richard Owen, the first head of the Natural History Department of the British Museum, was an idealist sympathetic to the German *Naturphilosophie* who believed in gradual progressive transformation of species, governed by laws of form, away from the original Platonic archetypes. Such transformation was always in terms of a “predetermining Will” and final purpose. An essentialist, he remained implacably opposed to Darwin’s functional explanation of natural selection, based as it was on chance, but resented being labeled by Darwin a believer in the immutability of species. (Owen is widely believed to have coached Bishop Wilberforce in his celebrated 1860 debate with Thomas Huxley, who defended Darwin’s theory.)

The Duke of Argyll, another nomothetic creationist, also rejected miraculous creation. The creative power is lawful: the Creator works through secondary causes of development, he argued in his *Reign of Law* (1867). “Creation has had a History [and also] a Method”—a method amenable to scientific investigation (*Primeval Man* [nd]:41).

The adaptation and arrangement of natural forces, which can compass these modifications of animal structure, in exact proportion to the need of them, is an adaptation and arrangement which is in the nature of Creation. It can only be due to the working of a power which is in the nature of Creative power. [Quoted in Gillespie 1979:98]

Argyll later conceded that providential evolution was possible, though he remained skeptical, and remained committed to the existence of purpose in nature and opposed to Darwin’s positivist evolution. Religion, he insisted, must remain a necessary aspect of science.

William Whewell, a Cambridge University mathematician and logician, Anglican priest, author of a *Bridgewater Treatise* on astronomy and physics and of the authoritative *History of the Inductive Sciences* and *Philosophy of the Inductive Sciences* (he coined the word “scientist,” as well the names of several of the geological epochs) felt that purpose in nature was self-evident. Natural, secondary causes were not sufficient to explain origins, and therefore the First Cause, God the Creator, must be appealed to in the end (Bowler 1984:203-4). However, Whewell and other nomothetic creationists prepared the way for the relinquishing of the notion of purpose and final cause in nature by later scientists.

The architects of the demise of teleology were not atheistic materialists but pious men like Herschel, Whewell, and Mill, who thought they were doing religion good service by limiting the domain of the accidental and of the miraculous. To them the more the empirical world was shown to be governed by secondary causes acting according to God-given laws, the more powerful and omniscient God was shown to be. [Hull 1973:63]

But it was Darwin who insisted that the break be made completely. “When Sedgwick accused Darwin, on the publication of the *Origin of Species*, of trying to break the chains that bound final causes to secondary ones he was right” (Gillespie 1979:15). In the new positivist conception of science, secondary causes alone, without reference to final cause or purpose, constituted scientific explanation. “Just as science shifted from a theological ground to a positive one, so religion—at least among many scientists and laymen influence by science—shifted from religion as knowledge to religion as faith” (1979:16).

Paleontologist Colin Patterson of the British Museum of Natural History, in a lecture to the systematics group at the American Museum of Natural History in 1981,

used Gillespie's argument to argue that the theory of evolution had become an "anti-theory" and "anti-knowledge," a merely verbal rather than a scientific explanation, "a void that has the function of knowledge but conveys none," and thus, in terms of its scientific status, precisely equal to pre-Darwinian creationism, the episteme it replaced. Patterson is not a creationist. He is a cladist. He used Gillespie to argue (rhetorically) that evolutionary assumptions of ancestry and descent relationships makes for bad systematics. As a cladist, he feels that systematists, to be objective, should ignore all evolutionary assumptions and classify organisms strictly on the basis of shared derived and novel traits.

Creationist Luther Sunderland of Apalachin, New York obtained a tape of Patterson's talk ("unethically," according to Patterson [Fezer 1984:5]), and publicized it very widely; e.g. *Prominent British Scientists Abandon Evolution* (1982) and "Evolution?: Prominent Scientist Reconsiders" (Sunderland and Parker 1982). He has also widely publicized a 1979 letter Patterson wrote to him admitting the lack of true transitional forms in the fossil record (again, this quote must be understood in the context of Patterson's cladism), and based his book *Darwin's Enigma: Fossils and Other Problems* (1984) on interviews with Patterson and four other paleontologists (Eldredge, Raup, Pilbeam, and Donald Fisher).

Modern creation-science harks back to the old episteme: the obsolete view of science in which religion is a fundamental and necessary aspect of science. The more sophisticated creation-scientists demand that this type of science be admitted at least as a component, or an option, of modern science. Recently, Robert Kofahl of the Creation-Science Research Center has used Gillespie's epistememes as one level in the conceptual hierarchy of scientific theory. Kofahl's four hierarchical levels are: (1) religious-philosophical faith or world-view, (2) Gillespie's epistememes, (3) conceptual frameworks ("systems of fundamental concepts, paradigmatic theories and experiments, and assumptions for particular scientific disciplines or areas of research"), and (4) scientific hypotheses (Kofahl 1989:12). Kofahl argues that, except at the lowest level (that of actual scientific hypotheses), supernaturalist assumptions—i.e. a supernatural world-view, supernaturalist epistememes and conceptual frameworks—are perfectly permissible in science.

This appeal to Gillespie's epistememes is part of Kofahl's proposed new definition of science—a definition which purposefully allows for creationist belief. Kofahl's "Proposal to Eliminate the Deleterious Effects of Religious Beliefs upon Science and Education" (1983, 1984) calls for science to be "philosophically neutral"—that is, for it not to discriminate against any particular world-view, episteme, or paradigm, including supernatural, creationist views. Such views are matters of faith, and cannot be excluded by science. At the level of "hypothesis," science must "deal with the reproducible empirical world and be empirically testable." Creationist scientists can do this as well as non-creationist scientists, says Kofahl. But, he emphasizes, at all higher levels, supernaturalist and creationist views—epistememes, paradigms, faith or worldview—should not be discriminated against in science, even though they are not empirically testable.

The thesis of a recent creation-science book by Norman Geisler (a Dallas Theological Seminary theologian who was a witness at the Arkansas Trial) and J. Kerby Anderson, *Origin Science: A Proposal for the Creation-Evolution Controversy*, is that there are two quite distinct types of scientific explanation: in terms of either primary or

secondary causes. “Operation science” is the name Geisler and Anderson give to science which deals with regularities of nature (what most other scientists refer to simply as “science”). Science may also deal with singularities—what the authors call “origin science”

Our proposal, then, is that there are two basic kinds of scientific explanations: primary causes and secondary causes. Likewise, there are two basic kinds of events: regularities and singularities, either of which may occur in the past or the present. It is clear that natural (secondary) causes are the only legitimate kinds of causes to posit for a regular recurring pattern of events. However, singularities, whether past or present, can have a primary or supernatural cause. But whether they have a supernatural or natural cause, past singularities come within the province of origin science. [1987:17]

Evolutionists, say Geisler and Anderson, rely exclusively on secondary causes, which is the only proper explanation for operation science, but creationists legitimately appeal to primary causes—including the supernatural—in their attempt to explain origins. Thus “origin science” need not concern itself with secondary, natural causes.

It is the proposal of this book that a science which deals with origin events does not fall within the category of empirical science. [1987:14]

The detailed analysis [of creation] is yet to be done by creationists. However, it seems clear that if creationist views are to gain scientific credibility, then they must follow the principles of origin science and build a positive case for a primary cause, rather than relying on the ineffective means of pointing out flaws in various evolutionary hypotheses. [1987:157]

PRESUPPOSITIONS

Creationists do not generally call their view of science, or that of their evolutionist rivals, an “episteme” (Kofahl is something of an exception), but they come more and more to rely on a similar term: the “presuppositional” basis of one’s worldview and of knowledge. Emphasized especially by Calvinists, this usage originated with turn-of-the-century conservative Dutch theologian and statesman Abraham Kuyper. It was developed into a full-fledged philosophy by Cornelius Van Til. With J. Gresham Machen, Van Til seceded from Princeton Theological Seminary in 1936 on the grounds that it was succumbing to modernism; together, they founded Westminster Seminary in Philadelphia and a new denomination, the Orthodox Presbyterian Church, as bastions of conservative Calvinist Presbyterianism. Rousas Rushdoony, a disciple of Van Til’s, and others in the Christian Reconstructionist movement are the strongest advocates of the presuppositionalist doctrine.

“Every science in a certain degree starts from faith,” wrote Kuyper (1931:131), in a lecture on “Calvinism and Science” delivered at Princeton in 1898, “and, on the contrary, faith which does not lead to science, is mistaken faith or superstition, but real, genuine faith is not.” Every science presupposes faith in a number of principles.

Not faith and science therefore, but two scientific systems or if you choose, two scientific elaborations, are opposed to each other, each having its own faith. Nor may it be said that it is here science which opposes theology, for we have to do with two absolute forms of science, both of which claim the whole domain of human knowledge, and both of which have a suggestion about the supreme Being of their own as the point of departure for their world-view. [1931:133]

The Bible, says Van Til, as God's Word, is the foundational premise of all thought. Its truth cannot be proved, but must be "presupposed," by faith. By faith we must accept the necessity and sufficiency of its divine revelation. In his *The Defense of the Faith* (1979; originally 1955), Van Til asserts that "science is absolutely impossible on the non-Christian principle." The non-Christian must assume that rationality and the laws of logic are the products of chance. "Thus the truth of Christianity appears to be the immediately indispensable presupposition of the fruitful study of nature."

If the Christian position with respect to creation, that is, with respect to the idea of the origin of both the subject and the object of human knowledge is true, there is and must be objective knowledge. In that case the world of objects was made in order that the subject of knowledge, namely man, should interpret it under God. Without the interpretation of the universe by man to the glory of God the whole world would be meaningless... On the other hand if the Christian theory of creation by God is not true then we hold that there cannot be objective knowledge of anything. [1979:43]

In the absence of Christian theism, no fact could be distinguished from any other fact (1979:208). Also,

it would be impossible to exclude one hypothesis rather than another... The idea of testing hypotheses by means of 'brute facts' is meaningless. Brute facts, i.e. facts not created and controlled by God, are mute facts.

Christian presuppositions are thus totally opposed to presuppositions which assume the autonomy of man, and lead to a world-view differing radically in its interpretation of every single fact from the rival, non-Christian view.

Many creationists stress the presuppositional nature of thought and of interpretation, arguing that the scientific evidence for origins can be interpreted logically either in favor of evolution or creation, depending on one's presuppositions. In the 1940s creation-scientist Frank Lewis Marsh conceded that nature did not compel belief in creationism: he argued that it was a matter of faith whether we choose to believe in evolution or creation (1963 [1947]). The scientific facts can be interpreted in light of either theory: which we choose depends on our prior framework of belief. Similarly, fellow Adventist Richard Ritland discusses the presuppositional nature of both evolutionism and creationism (1970).

Physics and astronautics professor Richard Korthals concedes that Darwinism must be correct if we assume naturalism as a presupposition, but he rejects this assumption. If we assume the truth of the Bible, then evolution must be false. Science cannot tell us anything definite about origins, but the Bible does. When science does presume to tell us about origins, it is improperly overstepping its boundaries (1972:138-44). Fellow Missouri Synod Lutheran John Klotz has emphasized that belief in evolution is based on "assumptions and presuppositions [that] are as much matters of faith as is acceptance of the Biblical creation account" (1985:7). One presupposition of evolutionist science is that only things that can be observed and measured may be considered real; thus, the supernatural is excluded.

Robert J. Ream praises Thomas Kuhn for demonstrating the role of paradigms in science but laments his relativistic conception of truth. As a Calvinist he insists that the Bible is "foundational" to science. "The evolutionary paradigm is a prize example of a model spawned in a framework which rejects a personal Creator and sets up a blind universe operated by chance" (1972:101) He cites science's rejection of the Paluxy

manprints as an example of facts which are excluded because they do not fit the evolutionist paradigm.

ICR evangelist Ken Ham argues that everyone holds some bias, some religious position based on faith. Evolutionists are biased against God and creationism. But creationism is the “best” bias to have, as it is based on infallible divine revelation (1987). ICR biologist Gary Parker, a former evolutionist who converted to creationism after teaching evolution in college, emphasizes that evolution was a “very emotional experience for him”; it was a “faith and heart commitment, a complete world-and-life view; in other words, a religion.”

Leo Van Dolson, in *Our Real Roots: Scientific Support for Creationism*, stresses the importance of presuppositions in the creation/evolution controversy:

There is just not enough available data on either side to prove one position or the other scientifically and conclusively. Thus presuppositions are all important. The big question is, what basic assumptions does one begin with? Here, I believe, the creationist has the advantage. He begins with what he views as inspired sources. The Bible story of the origin of life comes from the Creator Himself. Since the scientific data when viewed objectively fits just as well, if not better, into the creationist framework, it seems obvious that the added weight of revelation makes this position the most tenable. [1979:7]

Though many creationists emphasize the effect of Presuppositions—either Christian or materialist-atheist—on our interpretations of origins, Christian Reconstructionists such as Rushdoony, who are in a direct theological line of descent from Kuyper and Van Til, differ from ICR-type “creation-scientists” in insisting that the frankly religious basis of Christian presuppositions must always be acknowledged, and that attempts to prove that creationism can be “scientific” without also being religiously-based are deceptive and false. Thus, they oppose the attempts by creation-scientists to convince the American legal and educational system that creationism can be taught as a completely non-religious scientific model, divorced from its biblical roots. If these roots, these presuppositions, are ignored, say the Reconstructionists, even as a matter of legal strategy in order to get creationism into the schools, then so-called “scientific” creationism has surrendered to the non-Christian enemy.

Given the “presuppositional” or axiomatic truth of biblical inerrancy, which is therefore not subject to criticism or examination, the most bizarre hypotheses may be accepted in defense of creationism. Though exceedingly unlikely by ordinary scientific standards (which the creation-scientist may in fact be familiar with), they become acceptable, to the creationist, precisely because they preserve the cardinal principle of inerrancy. George McCready Price had argued that Flood Geology was true even if it seemed scientifically absurd:

It is no answer to my criticism of the grotesque logic offered for the geological ages to say that my hypothesis of a great world-catastrophe as the cause of much (if not most) of the fossiliferous deposits is incredible and absurd. Perhaps it is. [1931:10]

He declared that his scientific discoveries had forever refuted the geological ages of evolutionary theory, and therefore the biblical account, however absurd on the surface, must necessarily be true.

In upholding biblical inerrancy in matters where the plainest—the most factual and literal—interpretation of the Bible clearly conflicts with modern science, creation-scientists can go in either of two directions. They can either twist and stretch science to

make it conform to this straightforward interpretation, or they can twist and stretch the biblical interpretation to make it allow for those conclusions of science which they accept as undeniable. (In practice it always involves a mixture of both.) Mainstream strict creationists such as Henry Morris tend to the former approach, positing fantastic scientific hypotheses to account for recent creation and the Flood, and other events and conditions described in Genesis, such as the pre-Flood Water Canopy. Other, usually more independent creationists, tend more to the latter approach. They reject less of the conclusions of standard modern science, but consequently are forced to devise strange interpretations of certain Bible passages, and to posit extra-biblical notions and interpretations purely as ad hoc means of preserving what they know to be scientifically true while also preserving biblical inerrancy, in however strange a form.

Dudley Whitney, for example, proposed that there was a second creation after the Flood to account for the similarity of organisms on widely separated continents (he couldn't allow for continental drift then): "if God created this world and the plants and animals upon it in the first place, He could replace destroyed plants and animals by a second creation, and the logical belief is that He did so, to some extent at least" (1961:36). There is of course no suggestion of this independently in the Bible, but Whitney feels that it is required by science and that it does not violate inerrancy. Harold Armstrong invoked a post-Flood creation in order to account for desert animals, as did Lammerts and Howe with reference to plants (Rice 1988:32). Creationists such as Morris, however, reject such suggestions as contrary to the clear meaning of the Genesis narrative.

Glenn Morton, a creationist with oil exploration experience, realizes that all the sedimentary deposits of the geological record cannot be attributed to the Flood, as Morris and mainline strict creationists claim. His solution is to theorize that fossiliferous deposits were laid down primarily after the Flood during several hundred years of local catastrophes.

While his theory is an improvement on the usual Flood geology, it provides a breathtaking amount of extra-biblical emendation: the Bible provides genealogies and an outline of historical events from Noah to Abraham and totally neglects to mention that Earth was still writhing and seething with local catastrophes on a scale many hundreds of times greater than today. Morton has filled in this major component of Earth history that the Bible writers forgot to mention. [Rice 1988:31]

Morton feels obliged to do this because he knows the Bible to be inerrant, yet he realizes that Morris's Flood Geology is scientifically absurd.

Bernard Northrup, a pastor in Redding, California, is also sharply critical of standard Flood Geology as contradicted by scientific evidence. He has developed a theory that there were many catastrophes in earth history in addition to the Flood. The Paleozoic strata were laid down by the Flood itself, but the Mesozoic strata were deposited during the thousand years or so in which the Floodwaters gradually subsided. The continents were divided during this retreat of the Floodwaters (in the days of the biblical Peleg), and the accompanying vulcanism caused the Ice Age.

All creation-scientists must distort both science and the intended meaning of the Bible to some extent, regardless of which they distort more. As Stanley Rice expressed it (1988:26):

Some extrabiblical beliefs are necessary in order to rescue biblical literalism and bring it into line with modern scientific knowledge. Because these beliefs are necessary corollaries of biblical literalism, they have achieved a doctrinal status among the scientific creationists and are given nearly equal credence with scripture itself. In other cases, the extra-biblical emendations are wholly unnecessary flights of fancy, upon which many creationists place as much emphasis as upon scripture itself.

The Gap Theory of creationism, with its scenario of Satan's Fall and pre-Adamic reign on earth, is perhaps the most obvious example of a belief adopted solely to reconcile the Bible with science—in this case, a literal six day creation and the recent creation of man reconciled with the geologic ages—but for which there is no independent scriptural evidence (despite the claims of its supporters, who find vague references to it in various apocalyptic verses).

Gap Theory advocates know that young-earth creationism is massively contradicted by science, so they must find a way to preserve inerrancy without violating this scientific truth.

DICHOTOMIES

Richard Hofstadter (1962) emphasized that fundamentalists viewed the world in sharply dichotomized terms: of good versus evil. This propensity to see everything in terms of stark dichotomies is partly a consequence of the fundamentalists' tradition of biblical interpretation. Viewing the Bible as a set of propositional statements and hard facts (historical and scientific as well as moral), which are perspicuous and accessible to a plain, direct Common Sense approach results in a vulnerable situation. If any of these "facts" are shown to be in error, then biblical inerrancy—the central doctrine of fundamentalism—is called into question. Thus the "hyper-facticity" of fundamentalist biblical interpretation, and the assumption that the meaning of facts can be known directly and absolutely, encourages them to insist that there can be no compromising whatsoever regarding the meaning of plain, factual biblical statements; no room for re-interpretation. And any theory or doctrine which contradicts any part of the Bible is an attack upon the whole, and must be considered as of Satanic origin, and thus wholly evil. An obvious (to the fundamentalist) corollary to the principle that disproof of any fact in the Bible is a refutation of the whole is the belief that disproof of any fact used to support evolutionism, which clearly contradicts Genesis, must render evolution totally false. This seems plausible because there is a real dichotomy between the supernatural and religious-based explanation of creationism and the wholly naturalistic method of science.

The attitude that the Bible must be accurate and inerrant in all its facts or else it must be rejected entirely is expressed with surprising candor and frequency by creationists. Many "scientific" creationist books, which do not otherwise discuss religion overtly, declare this to be so quite openly. Some modern theories, notably evolution, clearly contradict the plain meaning of the Bible. Logically, this results in a refutation of inerrancy. This conclusion is of course unacceptable; if it were true, then the whole Bible is false: a lie, a sham, a delusion, a horrible deception.

Alfred Fairhurst, a natural science professor at Kentucky University, wrote in *Organic Evolution Considered*:

If the Bible and Christ and Christianity were products of evolution by natural causes, then Christ was only an erring man who mistook his own nature and mission, who died in vain, did not rise from the dead, and our faith is in vain. [1897:435-436]

In *What Is Darwinism?* (1874) Charles Hodge argued that either Darwin was wrong or that God did not exist. Evan Hopkins, who produced his own idiosyncratic creation-science theory (1865) to support a literal interpretation of Genesis, said: “If the Mosaic record is a myth, how can we believe in the Gospel?”

“If the Bible does not give us a truthful account of the events of the first six days recorded in its first chapter, it is not to be trusted in any of its statements,” asserted Philip Mauro (1910:27) in *The Fundamentals*.

Arthur Pierson, in his chapter on “Scientific Accuracy of the Bible” (1886:112), wrote:

Submit the Word of God to any and every test which is possible and proper—intellectual, moral, philosophical, ethical, literary, or scientific. If, on any rational ground, it does not stand the test, it must fall..

If the earth and life were not created six thousand years ago, as God told Moses, writes David Lord in *Geognosy* (1855), then not only the Genesis creation account, but the whole Bible is disproved, and loses its status as “heaven-descended reality.”

If evolution were true, said Adam Sedgwick (referring to Chambers’ pre-Darwinian *Vestiges*, but using the same reasoning still employed against Darwinian evolution), then “religion is a lie, human law is a mass of folly..., morality is moonshine.” “If the Mosaic records of Creation are provably false, our Saviour himself wilfully and persistently condoned the fraud,” said John Hampden (1880).

Evolution, which isn’t even science, says that Genesis is a lie, writes T.T. Martin in *Hell and the High Schools: Christ or Evolution, Which?* (1923). “But, if evolution, which is being taught in our high schools, is true, the Savior was not Deity, but only the bastard, illegitimate son of a fallen woman, and the world is left without a real Savior...” (quoted in Gatewood 1969:237).

“It is evident,” says Theodore Graebner (1921:24), that the evolutionary theory not only contradicts the Bible story of creation but, if true, deprives Christianity of every claim of being the true religion.”

If evolution is true, according to Floyd Hamilton in *The Basis of Evolutionary Faith* (1946), then “religion and morality and ethics might as well be cast on the scrap heap,” since these are based on the existence of life after death, which evolution denies.

John Raymond Hand answers the question posed in the title of his booklet *Why I Accept the Genesis Record* (1953) simply enough: if the statements in Genesis are not true, then neither is the rest of the Bible.

George McCready Price constantly stressed that evolution “flatly contradicted” the Bible. Astronomy, anthropology, biology, and especially geology all teach theories based on evolution which are in direct opposition to what the Bible teaches.

The alleged fact that the world is old beyond computation, that life has existed through successive ages covering millions of years—who does not recognize in this a direct contradiction of the most obvious teachings of the Bible? [1921; quoted in H. Clark 1966:90]

In *The New Geology* (1923:679-80) Price said, regarding evolutionary uniformitarianism and creationist catastrophism:

As these two hypotheses are mutually contradictory, only one can possibly be true. The other must be absolutely and wholly false. Either the present is a fair measure of all the past, and there has been a long succession of ages under conditions much like the present; or there has been, at some time in the past, a world change quite different from the present order of things—so different as to make unreliable any attempt to tabulate off in an accurate historical succession the events preceding this world catastrophe.

Alfred Watterson McCann, in *God—or Gorilla* (1922:331-332), wrote:

That there should be no weakening of the fascination of ‘Darwinism,’ as the theory of man’s ape-origin, is ...the most disquieting and at the same time most inexplicable phenomenon of the twentieth century, for the simple reason that the preponderance of scientific evidence, including all the established data and all the opinions based on truth as it has been stripped of error, have come into court solidly against the ape, whereas, on the other hand, there remains on the side of the ape nothing but the old inferences and assumptions, nothing but the old hypotheses and unsupported theories based on erroneous or deliberately fabricated premises, nothing but the old conflicts and contradictions, nothing but the old falsifications and exposures. In their choice the nations have the alternative of chaos or Christ.

Creationist Herman Otten wrote *Baal or God* (1965), echoing Bryan’s phrase that the Scopes Trial presented a “choice between God or Baal.”

Walter Lang (1968) quotes Arthur Schnabel:

Our social life demands the creation approach, for socialism and communism destroy the individual. All fields of science need the creation approach for it is the simplest and best explanation of origins and agrees best with the latest scientific data. Government needs the creation approach—the alternative is a Hitler or a Stalin.

Francis Nigel Lee wrote a book called *Communism Versus Creation* (1969).

John Roach Straton, in his debate with Potter, said:

Therefore, the issue in this debate is not only an issue between creation and evolution, but between God and no God.

Furthermore, it is evident that there is no possible compromise between these two systems of thought. There is no middle ground. Either creation is true and evolution is false, or else evolution is true and creation is false. Either we must accept the revelation of a living God, and His creative and redemptive activities as given in the Bible, or we must utterly reject this and turn to the infidel philosophy of chance and materialism. [1924:34]

F. Bettex wrote [1901:157]:

If these first words [of Genesis] are not true, throw your Bible aside; it begins with a lie! But if there is a beginning, a God, a heaven, and an earth, then the Bible is true down to the last word concerning the new heaven and the new earth. You are a Christian, or you are not! There is no middle way...

Rev. William Williams, who first popularized the anti-evolution probability arguments, says that “If evolution wins, Christianity loses.” He agrees with other fundamentalists that “If the Bible is not really inspired, it is the greatest fraud ever perpetrated on mankind,” and “if Moses was not inspired, he was the greatest liar in history” (1925:112).

Jesus was either a “lunatic or the Son of God,” says Alan Hayward (1978:174-175), who supports old-earth creationism in several books.

Rousas Rushdoony (1971:5-6):

We have thus two rival faiths, each with its belief in miracles, one by God, the other by the potentiality inherent in the universe... God, clearly, is an inescapable premise of human thought. Man either faces a world of total chance and brute factuality, a world in which fact has no meaning and no fact has any relationship to any other fact, or else he accepts the world of God’s creation and sovereign law.

Gary North (1988:5):

This is the century-old clash between some variant of Darwinism and creationism. There is no biblically acceptable way to soften this confrontation. There can be no “smoothing over of differences.” The two systems are incompatible. This is not a case of semantic confusion; this is a case of all-out intellectual war. It is at root a war between rival religious worldviews, rival religious presuppositions concerning God, man, law, and time. [1988:5]

An intellectual war is going on. The Darwinian humanists have made it clear that they do not intend to take any academic prisoners. Neither should the creationists. Scientific neutrality is a myth. I cited Van Til’s warning- and I cite it again: “If the theistic position be defensible it is an impossibility for any human being to be neutral.” [1988:8]

If Evolution Is False, the Bible Must Be True!, announces the title of a booklet by Charles Cook (1986), who recently formed the Creation Studies Ministry in Grand Terrace, California. He insists that there are only two views on origins, which are directly antithetical. Evolution leads to the secular humanist view of the autonomy of man, which is by definition (says Cook) amoral. Creation results in democracy; evolution in “one form or another of Totalitarianism.” Cook urges parents and students to arm themselves in God’s Truth—creationism—in order to resist Satan.

Peter Stoner, after proving that the Bible is God’s divine word by his probability calculations in *Science Speaks: Scientific Proof of the Accuracy of Prophecy and the Bible*, and that Christ’s divinity is the best-proved fact in history, says that the only alternative to admitting all this is to say: “I shall live a life in sin against God, and for this I shall spend eternity in hell with Satan.”

There are “only two religions,” says prominent televangelist D. James Kennedy (1980:50). “One...is Christianity; the other religion is evolution. Anyone who does not realize that evolution is a religion does not know much about evolution.”

In *Why We Believe in Creation Not Evolution* (1974:8; originally 1959), Fred John Meldau declares simply: “If Evolution Is True the Bible Is False.”

But if the Bible is true—and we are absolutely certain it is—then evolution is merely the vain imaginings of biased men, men determined they will not believe in a Supreme Being, but ready to believe in any kind of theory that might be a possible substitute for the evident fact of creation.

In *Evolution or the Bible: Which?* (1963), John R. Rice hammers home the theme that the Bible and evolution are utterly opposed. “Well, evolution or creation; which is it? Then that means that evolution is against the Bible and Christianity, and the two are not reconcilable” (1963:9).

I am saying, it is either Jesus Christ and the Bible or it is evolution, but the two do not fit together... I say, evolutionary teaching fits in with communism and with infidelity but not with Christianity.

No, we must have a supernatural God. We must have a Bible divinely inspired. We must have this earth coming into being at the hands of God. We must have a man made in the image of God, then fallen, then needing to come for mercy and forgiveness, and to be born again. [1963:10-11]

In *Man—Ape or Image* (1984), John Rendle-Short concurs that the Bible “flatly contradicts” the theory of evolution. “Therefore, if evolution is true, the Genesis narrative must be largely myth or poetry, with a spiritual, non-historic basis”—a conclusion he flatly rejects. “If evolution is true, there was no historical Fall. If man did not Fall, there is no need for a Saviour.”

In *Evolution: When Fact Becomes Fiction* (1986:173), a book endorsed and distributed by the Creation-Science Legal Defense Fund, Ricki Pavlu says:

If a person rejects the Old Testament account of creation and classifies Genesis 1 and 2 as mere fables, then he must also reject the New Testament, for the New Testament accepts as valid the creation, Adam and Eve, and the curse. If any portion of God’s Word is in error, then we must reject the whole, including the message of salvation.

Robert Whitelaw, the Virginia Tech engineering professor, says that the acceptance of evolution results in the relegation of the biblical record “to the dust-bin of folk lore.”

For instance, if [evolution] is true, then there is no origin, no purpose, no destiny. There is no truth or error. There is no right or wrong. There is no way to tell the real from the imaginary. There is no good, no evil, no hope. The end now justifies the means. Might becomes right and tyranny, brutality, greed, all become acceptable, IF total evolution is the answer... [1981:1]

In *Genesis Versus Evolution* (1961:58-9), Dudley Whitney argues that if natural law cannot explain earth history (and it cannot), then special creation must be true; if the Flood really occurred (and science shows that it did), then special creation must be true; if the geological ages are illusory (and they are), then special creation must be true; if human history started recently (and evidence shows that it did), then special creation must be true.

David C.C. Watson says that the “monstrous error” of evolution is the biggest delusion, the “greatest brain robbery,” ever perpetrated (*The Great Brain Robbery* 1976). There is no possible harmonization between evolution and Genesis; they flatly contradict each other. Darwinism contradicts nearly everything in the creation account of Genesis: instant creation, the fixity of species, the special creation of man and woman, the Fall, the curse, the universal Flood, the miraculous confusion of tongues, and the young age of the earth.

In *Evolution Vs Science and the Bible* (1974), a series of pamphlets designed as a study course for church schools (but also deliberately designed to double as tracts for wide distribution), Bob West denounces evolution because it contradicts the Bible. “The Bible record is the only record that harmonizes with scientific fact,” proclaims West, a Gap Theorist.

If evolution is true, it is necessary for the following to also be true. (1) There is no God. (2) The Bible account of creation is a myth or fantasy. (3) The scriptures are not from God. (4) Jesus is not our saviour. (5) Man is only an animal. (6) There is no such thing as sin, or morality. [tract #1]

EVOLUTION AS MAN'S ESCAPE FROM GOD

“From first to last,” said Adam Sedgwick of Darwin’s *Origin*, “it is a dish of rank materialism cleverly cooked and served up... And why was this done? For no other solid reason, I am sure except to make us independent of a Creator” (quoted in Gillespie 979:140). As Gillespie notes, this may be partially true: Darwin may have been motivated in part by a desire to propose a purely positivist science—a science which did not allow of supernatural causation and explanation. But ever since, fundamentalists have extrapolated from this the allegation that people believe in evolution not because of scientific evidence, but primarily in order to escape from acknowledgment of God.

Philip Mauro, in *Evolution at the Bar* (1922:60), says: “It requires no great penetration to see that the real object of attack by supporters of Evolution is the Bible, with its revelation of Christ as the Redeemer and Saviour of men.” If evolution is contradicted by the findings of science, asks Theodore Graebner, why do scientists believe in it? He continues:

In answering this question let us first observe that scientists do not stand opposed to Christian belief as representatives of science. It is not science, but the scientists, not geology, but the geologists, not physics, but the physicists that oppose Christian theology. [1921:141]

The warfare of philosophy against Christian faith is readily explained. Man is corrupt. He loves sin. He is conscious of his guilt and fears the penalty. Hence every avenue of escape is welcome, if only he can persuade himself that there is no God, that there is no judgment. [1921:145]

In *Why Scientists Accept Evolution*, R.T. Clark and J. Bales argue that nineteenth century scientists “accepted evolution because of their anti-supernatural bias, and not because of the weight of scientific evidence” (1966:108). (They claim that twentieth century scientists accept it, uncritically, simply because their teachers and predecessors did.) People are so opposed to God, says Carl Theodore Schwarze in *The Harmony of Science and the Bible* (1942), that they accept any silly theory, such as evolution, that “gives the lie to Scripture.” “The reason people believe in evolution,” says evangelist John R. Rice, founder and editor of *Sword of the Lord*, “is not that it is reasonable but that it is an excuse for not believing in God and direct creation” (*In the Beginning...*, 1975:43).

In *Evolution: The Incredible Hoax*, Homer Duncan, director of Missionary Crusader in Lubbock, Texas, gives as one of the primary reasons people believe in evolution that “man wishes to escape the authority of God and the authority of His Word”:

Human nature does not like the restraints that are put on us by believing in God. We want to be free. We want to do what we want to do. We do not want to be under the authority of God, or under the authority of the Bible. Men refuse to recognize the awful reality of sin. They do not wish to believe that they will be held accountable for their sins. [1978:52]

Satan uses the theory of evolution to exploit this desire to escape God: “The theory of evolution is one of Satan’s master strokes.”

The conflict between creation and evolution is a major part of the gigantic battle between God and Satan. It is a battle for the minds and souls of men. The Biblical account of creation and atheistic evolution are diametrically opposed to each other. Both positions cannot be true. Common sense compels me to believe

in creation rather than evolution. The Christian faith is based upon the solid evidence that the Bible is the Word of God... [1978:59-60]

Duncan proclaims that he believes in creationism because he believes in God, in Christ, and in the Bible.

Evolution is a “cultural myth,” says Rousas Rushdoony in *The Mythology of Science*, which is seized upon in order to avoid God and because it promises the benefits of religion with none of its responsibilities. “The convincing thing about evolution is not that it proves man’s origins or even gives anything resembling a possible theory but that it dispenses with God” (1967:48).

“In the last analysis, then,” says Henry Morris, “evolution is a religion that permits man to divest himself of concern for or responsibility to a divine Creator. It is not a science in any proper sense of the word at all” (1968:28). Gary North in fact criticizes “scientific creationists” for not fully realizing this. Scientific creationists, he says:

have failed to recognize clearly that the heart of Darwinism’s hold on the thinking of the modern world is not the evolutionist’s scientific case, which has been remarkably weak from the beginning, but rather the long-term goal of autonomous man: to escape from God’s judgments, historical and final. [1988:xiii]

CHANCE VERSUS PURPOSE AND DESIGN

Another aspect of this dichotomized view is the conflict between chance as the basis of the evolutionist view, and purpose and design as the basis of creationism. John Roach Straton:

The real issue in the debate is whether the earth and man originated, or came, by design through the creative power of God, or by chance through the haphazard operation of evolution. It is the issue between naturalism and supernaturalism; between calculated planning and mere fortuitous circumstance. [Straton and Potter 1924:36]

David J. Schonberg wrote a booklet *On Purpose or by Chance? (Or Does It Matter?)* (1974), arguing that evolution dismisses the idea of a Creator and of moral standards. “The necessary implication of the Bible’s conception of reality,” says Robert Ream in *A Christian Approach to Science and Science Teaching* (1972), “is a complete absence of what is called ‘chance’.” If God exists we must worship Him, says Kenneth Taylor in *Creation and the High School Student* (1969). “But if the universe originated through chance and there is no Creator, then nothing in this universe or in our lives has purpose.” “We owe our existence either to the creative acts of God or to random chance,” insists John Wiester in *The Genesis Connection* (1983). In *Chance or Design?*, James Horigan declares that the materialist view of creation by pure chance is “unsupportable, if not irrational.”

Rousas Rushdoony in *The Mythology of Modern Science* (1967): “Evolution requires chance, whereas science rests on absolutely determined factors and causality.” “The Impotent God of Chance,” the opening chapter of Henry Morris’s most recent book *The God Who Is Real* (1988), emphasizes that there are only two possible possibilities of origins: either the universe was created by God, or it evolved by itself. Morris strives to show that the God-less alternative, which must rely on chance, violates all concepts of probability.

Design, according to fundamentalists, is also diametrically opposed to chance. The venerable Argument from Design remains the chief weapon in creationist apologetics. Creationists consider it self-evident and incontrovertible. Though the theory of evolutionary adaptation stood the design argument completely on its head, creationists continue to appeal to Design without even a trace of defensiveness. It is featured in virtually every book or article promoting creation-science. “Actually,” says John Morris (1989), Henry Morris’s son, “any living thing gives such strong evidence for design by an intelligent designer that only a willful ignorance of the data (II Peter 3:5) could lead one to assign such intricacy to chance.”

“The most powerful evidence for creation and against evolution,” state Robert Kofahl and Kelly Segraves in *The Creation Explanation*, a widely-cited creation-science textbook, is “found in specific evidences of intelligent, purposeful design. This evidence is all around us and is something the layman as well as the scientist can appreciate” (1975:xii). ICR biologist Gary Parker features UC Santa Barbara evolutionist Garrett Hardin’s rhetorical question “Was Paley right?” (which Hardin posed in a biology textbook to stimulate discussion about adaptation) in his creationist primer *Creation: The Facts of Life* (1980:36-9; Parker’s book is also reprinted as the first half of *What Is Creation Science?* [1982] by Morris and Parker). To Parker, the answer to this rhetorical question is obvious: *Yes*. Wernher von Braun’s contribution to the 1972 California textbook hearings was titled *The Case for Design*.

The book *Why We Believe in Creation Not in Evolution*, by Fred John Meldau (1974), for instance, consists almost entirely of densely packed examples of “witnesses against evolution”: various wonders and designs of nature. Meldau describes hundreds of animal and plant adaptations, the design of earth’s physical properties and ecosystem, the social insects, marvels of the human body, and many more. R.E.D. Clark argues long and hard against chance in *The Universe—Plan or Accident?* (1961), describing the remarkable “fitness” of the universe for life as evidence for Creation. In the chapter “Nature—The First Inventor” Clark shows that many examples of design in nature utilize scientific and engineering principles only recently discovered by man. The theme of A. Cressy Morrison’s 1944 book *Man Does Not Stand Alone* (written in response to Julian Huxley’s evolutionist *Man Stands Alone*) is that the wonders and design of nature prove a Supreme Intelligence and purpose. Morrison, a former president of the New York Academy of Sciences, admits the strength of Darwin’s theory, but maintains that Paley’s design argument has not been refuted.

Norman Macbeth, a retired lawyer, claims in *Darwin Retried: An Appeal to Reason* (1973) that the design argument has not been defeated. (Macbeth, who became a regular and prominent attendee of the Systematics Group meetings at the American Museum of Natural History in New York, first made these accusations in a *Yale Review* article.) James E. Horigan, a Denver lawyer, wrote a book *Chance or Design?* (1979), arguing for Design in nature. Horigan unabashedly professes his admiration for Paley and the Bridgewater Treatises. The evidences of obvious intelligent design in the universe are “far too bewildering to attribute to chance.” Horigan notes laconically that “the biblical account of Genesis fits quite comfortably” with his interpretation.

Wilder-Smith, the British-born triple doctorate living in Switzerland, has made a modernized version of the design argument the thesis of several creation-science books. His chief argument is that Intelligence—Logos—is necessary for the creation of life; that

life is impossible without prior Plan, and that random systems cannot by themselves produce Design. He insists that the Argument from Design has “never been adequately refuted.” In *The Creation of Life: A Cybernetic Approach to Evolution*, Wilder-Smith develops his computer-age design argument at considerable length. Computers, he says, have decisively refuted the theory of the random origin of life. Knowledge of cybernetics allows us to dispose of the anthropomorphic concept of God and view Him as Intelligence. The DNA code upon which life is based is more than a mere pattern: it is an actual script for life. Such an information code proves supernatural Creation. Wilder-Smith says that “hindrances to accepting the postulate of an exogenous intelligence to account for nature’s coding have been finally and completely overcome by quite recent advances in cybernetic science” (1970:161). Chance cannot program information.

In another book, *The Natural Sciences Know Nothing of Evolution*, Wilder-Smith expands on this idea.

Evolution is thus basically an attempt to explain the origin of life from matter and energy without the aid of know-how, concept, teleonomy, or exogenous information. It represents an attempt to explain the formation of the genetic code from the chemical components of DNA without the aid of a genetic concept (information) originating outside the molecules of the chromosomes. This is comparable to the assumption that the text of a book originates from the paper molecules on which the sentences appear, and not from any external source of information... [1981:4]

“Thus,” Wilder-Smith concludes triumphantly, “it is impossible for matter to have organized itself without the aid of energy and of teleonomic machines!”

Paleontology gives no evidence that evolution has occurred, as Wilder-Smith demonstrates in some detail; more importantly, information theory proves positively that it cannot occur. No laboratory experiment could ever demonstrate the plausibility of a naturalistic origin of life, he argues, because the scientist always adds energy and some of this all-important “know-how”—information, concept, teleonomy, Logos—to the experiment. Such experiments do not duplicate “natural” conditions. Because of this added “know-how,” scientists have been “successful in their attempts to create artificial life.” Since the vital “know-how” was added, these experiments do not prove life could have arisen naturally; quite the contrary, they prove that exogenous Intelligence is necessary to create it.

Darwin, when he formulated his theories of the origin of life one hundred years ago [sic—Darwin wrote about the evolution of life from previous species, not the origin of life itself], had no knowledge of either the laws of thermodynamics (they were just being worked out by Clausius, Clapeyron, and Kelvin at that time), or the laws of heredity (Mendel’s laws were unknown to him, though they were published in Darwin’s lifetime). Darwin in his day could therefore assume with impunity that order did arise spontaneously from chaos, that life did arise spontaneously. Today, in the light of scientific discovery, we can no longer do this. [Wilder-Smith, quoted by Ingram 1968:6]

Creationists are so utterly convinced by the Design Argument that they use it unblinkingly in ways that seem paradoxical to non-creationists. Many of the marvelous adaptations seen in nature work to the detriment of other species—especially carnivorous and parasitic adaptations. Such exquisitely designed evil (for creationists consider it such) refutes evolution as convincingly as beneficent design. Most creationists do not see this as a paradox. They rationalize it by explaining that this evil is the result of the Fall:

disease, death, and decay all originated with the introduction of sin by Adam. Or, that evil design is Satan's design—a perversion of God's created design.

The ichneumon wasp is a classic example of such apparently “evil” design. As Stephen Jay Gould has pointed out (1983), the ichneumons presented a glaring challenge to natural theology throughout the nineteenth century, being a particularly acute example of the “problem of evil.” The ichneumons were described by many natural theologians and naturalists of the time, notably Jean Henri Fabre, the great French entomologist and confirmed creationist. The female ichneumon wasp (there are thousands of species) lays eggs either on or inside captured, living caterpillars, spiders, or other insects; these hosts then serve as food for ichneumon larvae. Some species lay eggs on top of caterpillars which are carefully paralyzed to keep them alive for food but unable to move away from the larvae which proceed to slowly devour their food supply. The larvae leave the heart and other essential organs til last to keep them alive as long as possible. Some larvae species even suspend themselves above partially paralyzed hosts so as to be able to avoid their thrashing, carefully descending to eat during safer moments.

The earlier creationists had two general responses, according to Gould: they described in anthropomorphic detail the protracted agony of the prey, or they emphasized the “maternal” care of the ichneumon in so elaborately and efficiently providing for its larvae. The second response also includes the familiar creationist invocation of Design as proof of Creation. Theodore Graebner, for instance, used the example of the ichneumon wasp, complete with picture, in his *Essays on Evolution* as evidence of instinctive behavior so complex as to decisively refute evolution (1925:42). Televangelist George Vandeman presents the example of the potter wasp, an ichneumon whose larvae are suspended by threads above the partially paralyzed caterpillars, as proof of creationism, along with other examples of Design. Vandeman quotes an unnamed source:

Certainly the potter wasp's strange behavior has to leave evolutionary theory hanging in midair along with its offspring. And maybe it's trying to tell us something about a Creator who obviously has a lot of architectural expertise along with a pretty ingenious imagination. [Vandeman 1978:83-4]

George O'Toole also described the exquisitely adapted instinct of these wasps, which could not have evolved gradually, in *The Case Against Evolution* (1926:264-265). More recently, an ichneumon wasp was featured on the cover of the *Creation Research Society Quarterly* (1974: 11(4)) as an example of design.

A partial exception to the usual creationist treatment of design comes from Bolton Davidheiser. Davidheiser, a trained zoologist, cites examples of design (including the ichneumon wasp), but also provides many examples of imperfect biological adaptations in his *Evolution and Christian Faith* (1969:194-7), arguing that these traits would not be produced by natural selection. To Davidheiser this is evidence against the sufficiency of evolution, since, he says, natural selection would not allow for the survival of such imperfections, but Davidheiser's argument runs counter to the standard creationist appeals to benevolent and perfect design in nature.

MORALITY

“The great end of the study of geology ought to be, a moral, rather than a scientific one,” declared George Fairholme in 1833. Adam Sedgwick, on receiving Darwin’s *Origin of Species*, wrote to him:

‘Tis the crown and glory of organic science that it does, through final cause, link material to moral... You have ignored this link; and, if I do not mistake your meaning, you have done your best in one or two pregnant cases to break it. Were it possible (which, thank God, it is not), to break it, humanity, in my mind, would suffer a damage that might brutalize it, and sink the human race into a lower grade of degradation than any into which it has fallen since its written records tell us of its history. [Quoted in Gillispie 1951:217]

“If current in society,” Sedgwick had earlier declared of Chambers’s evolutionist scheme in his *Vestiges*, such beliefs would lead to “nothing but ruin and confusion... It will undermine the whole moral and social fabric...” (quoted in Toulmin and Goodfield 1965:224).

This—the moral issue—has always been at the heart of anti-evolutionist motivation. Fundamentalist creationists insist that morality is necessarily based upon God-given standards and supernatural sanctions. In a purely natural world, no morality is possible: there is no possible foundation for it, according to fundamentalists. Thus, any account of “origins” is not merely a concern of science: it is a question of morality, or the lack of it. For Sedgwick, as for creationists today, morality is derived from the order of nature, since nature is a creation of God’s order and design, and since religion is an inseparable aspect of science. Evolution, if true, destroys the Bible as God’s inerrant Word, and thus destroys the only basis for morality.

William Jennings Bryan’s central argument against evolution was that since religion—belief in God—is the “only basis of morality,” and because evolution clearly contradicted the Bible, the basis of the true Christian religion, evolution is therefore religion’s greatest threat.

Why do we object? Because, when a man thinks he is a descendant of a brute, he looks downward to the brute for interpretations of himself. When he believes he was made by the Almighty in the image of God and for a purpose, he looks upward for his inspiration. [*Bible or Evolution?*, n.d.:24]

Evolution destroys belief in the immortality of the soul, which Bryan felt is the most important stimulus to righteous living (*In His Image*, 1922:31-2, 87). In *The Bible or Evolution?* (n.d.), he further expounded on this theme of the evil effect of evolution on morals. In Bryan’s reasoning, since evolution obviously had such an evil effect, it must necessarily be false.

George McCready Price in his 1902 booklet had denounced evolution because of its anti-Christian “moral and religious tendencies” as well as its unscientific nature. “The great mistake of Darwinism,” wrote F. Bettex (1901:133):

is the ignoring of the sacredness of individuality as a fundamental condition and the chief pillar of the creation. If this individual be but the product of blind influences and natural forces, without a Divine idea as its immortal diamond kernel, the universe sinks ninety-nine per cent in value.

“If God had not given each species a fixed and permanent existence,” he continued, our spiritual and intellectual life, lacking firm unchanging foundation, would crumble. “The indestructibility of the species is the necessary condition of a healthy mental development. Its changeableness would mean the intellectual ruin of humanity.” Worse, Darwinism denies the immortality of the soul (1901:134-5).

Sir John William Dawson, the great Canadian geologist, said that evolution was embraced by those seeking “deliverance from all scruples of conscience and fears of a hereafter” (1887). In a later work he wrote that evolution has “stimulated to an intense degree that popular unrest so natural to an age discontented with its lot, which threatens to overthrow the whole fabric of society as at presently constituted” (quoted in Price 1920:166).

In *Evolution—A Menace*, a book published the year he became president of the Anti-Evolution League of America (1922), John W. Porter stated that evolution denies moral responsibility, destroys belief in the Bible and Christianity, and “logically and inevitably leads to war” (quoted in Gatewood 1969:129). Porter, editor of the *Baptist Western Recorder*, was a leader in the effort to ban evolution from Kentucky schools.

In *Collapse of Evolution* Luther Townsend preaches against evolution’s evil effects on morality:

If under the sway of evolution the present trend keeps on warfare will continue with no leagues strong enough to prevent it; the world will become a slaughter-house, every man a murderer, who is not murdered; it will become an asylum for an idiotic race and a mad house with padded cells without anyone to lock or unlock its doors. The last man, a degenerate, will curse God, dying with the curse on his pallid lips. Such is the world’s prospective doom if the theory of a Godless and Christless evolution takes the place of Bible revelation and command, and these conclusions appear to be based upon established facts and have been reached by approved scientific methods... [1922:35]

Any theory that tends to dethrone God, elevate monkeys and degrade men (every scheme of evolution points that way), is sure, if followed, to end in disaster. [1922:59]

Giuseppe Tuccimei, an Italian anti-evolutionist, expressed the same fear: “This perverse determination to place man and brute in the same category, interests me not so much from the scriptural standpoint as for reasons moral and social.” The consequences of evolution are “socialism and anarchy” amongst the “ignorant and turbulent masses.” If man arose from the animals, “why should we not enjoy in common with them the right to gratify every instinct?...why not proceed then to a general leveling of the existing social order?” If evolution is true, then free will, the soul, and life after death become myths, and morality loses its sanction:

what guilt will there be in the delinquent who lapses into the most atrocious crimes?... And behold the suffering, the unfortunate, and the dying deprived of their sole consolation, the last hope which faith held out to them, and society reduced to an inferno of desperadoes and suicides! [Quoted in G.B. O’Toole 1926:361]

Dan Gilbert is equally direct in *Evolution: The Root of All Isms* (1935:8). Evolution must be judged by its fruits, and by comparison with God’s Word:

Who can reasonably defend the evolutionary dogma, even though it be attested by every scientist on earth, if it acts as the tap root from which has sprung the upas tree of atheist-communism? Who can honorably

defend as true on “scientific” grounds a doctrine which proves itself false—on humanitarian and moral grounds—by poisoning human life and civilization with the lethal gases of communism and free-love?

“The theory of evolution is responsible for a marked deterioration in moral conduct and must stand up for its fair share of the blame,” writes W.W. Cassio in *Evolution and Ethics* (1964:10). The theory itself is a “perversion of truth...replete with fraud and deceit...often sustained by a deliberate suppression of facts.” Simply by degrading the authority of the Bible it has had an appalling effect on morality. “The blackest superstitions and the most heinous crimes prevail where the Bible has the least influence...” (1964:16). Evolution promotes a “reversion to jungle ethics.”

“For a man to think of himself as an animal is debasing,” says Hanford Gutzke in *Plain Talk on Genesis* (1975); it leads to “unchecked immorality.” The Genesis account proclaims strict fiat creationism “plain as day”; it also “exactly fits the best thinking of scientists today...” Continuity of the biblical ‘kinds’ of organisms is also “basic to all morality,” he argues. This doctrine of “after its kind” insures not only biological continuity but also that good comes from good, and evil from evil. In *The Social Consequences of Evolution* (1978), an EPM pamphlet, J.W. Jepson says that according to the evolutionist, there is no such thing as crime and nothing deserving of punishment.

The fruit of evolutionary philosophy is evil (Communism, Nazism, Freudianism, materialism, etc.), says Henry Morris (e.g. 1962:92); therefore evolution is false. In another work (1966) he writes:

The very nature of Christian morality is squarely opposed to that of evolution. ... It is well known that an evolutionary philosophy is the basis of Communism, Fascism, and the many other anti-Christian systems of the day.

And in his book *Education for the Real World* (1977), Morris advocates study of nature in order to derive moral lessons. Not only is evolution false because of its alleged effect on morality; all of nature is viewed as a source of parables for moral lessons. John Morris, echoing the sentiment of his father, states that evolution will one day no longer be able to masquerade as science, but will be exposed for what it really is: “overt Satanism” (1973:110).

In their textbook *Physical Science for Christian Schools*, which, though it does not deal with life sciences but is officially *dedicated* to creationism, Emmett Williams and George Mulfinger of Bob Jones University say that “Evolutionism spawns a disrespect for authority, for moral values, and for God Himself. Evolutionism basically destroys man by convincing him he is a mere accident of nature, a clever animal at best” (1974:v).

In *The Creation of Life: A Cybernetic Approach to Evolution*, European creationist A.E. Wilder-Smith argues against science’s rejection of the supernatural. He strongly denounces materialistic science as atheistic propaganda.

The materialist view of life brings with it a superficial and, at the same time, brutalizing, lawless way of life. Why have law and order deteriorated so rapidly in the United States? Simply because for years it has been commonly taught that life is a random, accidental phenomenon with no meaning except the purely materialistic one. The older supernatural views taught that life was a plan and code, which needed for its government a plan of supernaturally given codes or laws. [1970:17]

In a book on astronomy, John Whitcomb and Donald DeYoung write: “The issues are, at bottom, moral and ethical, rather than merely academic and intellectual,” (1979).

Francis Schaeffer, an influential fundamentalist philosopher and theologian, argues in *How Should We Then Live?* (1983) that our life and culture has degenerated to the extent that we have forsaken Christian ethics, morality and belief. In one chapter, Schaeffer explains that the rise of science was due to Christianity, and in another, that “The Breakdown in Philosophy and Science” was caused by evolutionism and the destructive philosophies it has spawned.

The Crime of Being Alive, an anti-abortion tract (reprinted from *Last Days Newsletter*) co-authored by Melody Green, a prominent anti-abortion activist often seen in the company of President Reagan, compares abortion explicitly with Hitler’s policies, both of which are based on Darwinism. “If man evolved, then he is a mere animal. His value is determined strictly by what he can offer society. If man is created in the image and likeness of God, his value is determined by his Creator” (1984).

In *Can America Survive the Fruits of Atheistic Evolution?* (1981), a tract widely distributed by Pro-Family Forum, an active supporter of the recent Louisiana creation-science bill (they submitted several written arguments to the court), author Bert Thompson of Apologetics Press (*Reason & Revelation*) declares that its fruits are Nazism and communism.

Evolution is built upon the assumption that man is only an animal; consequently, morals and values are useless and not to be incorporated into the system... Evolution, though its advocates do not like to admit it, leads to out-and-out racism... America’s ruin will be hot on the heels of the popular acceptance of evolution.

Prominent Florida televangelist D. James Kennedy calls evolution “the big lie...the most destructive, pernicious lie that has ever come down the pike... It has already resulted in the deaths of more people than have been killed in all of the wars in the history of mankind” (1977:1). Kennedy proclaims that evolution is the basis of every false and evil doctrine in sight. To the evolutionist: “life has no meaning. It is just haphazard chance... Life has no values and there is no basis for any moral standards” (1987:12).

Walter Lang answers the charge that injecting religion and morality into science will ruin its objectivity by insisting that when doing science, not only nature’s constraints, but God’s moral constraints must always be observed.

Obviously there has to be a balance between nature and moral constraints, but today we have lost the balance, by despising the moral constraints that are necessary for nature, and claiming that they are not only unimportant but even damaging. Because we have neglected and avoided these moral constraints, for that reason we have this greatest of all paganisms in the history of the world, this greatest of all deceptions and myths, namely, mega-evolution; the idea that the world is billions of years old and that we came from lower forms of life. [1986:5]

CHAPTER 5

DIVERSITY AND SPREAD OF CREATIONISM AND ANTI-EVOLUTION RELIGIOUS DIVERSITY: PROTESTANT

The creationist movement is of course predominantly a movement of Protestant fundamentalists. Within Protestantism, denominational and other differences have shaped various anti-evolutionist styles and approaches. There is, for instance, a basic difference between fundamentalism (strictly defined), evangelicalism, and Pentecostalism, which results in some differences in approach to creationism.

Though fundamentalists, evangelicals, and Pentecostals are often lumped together as if the terms were synonymous, these conservative Christians themselves often insist that there are deep and significant distinctions between them (though certainly much overlap also). “Evangelical” is sometimes used as a broader, inclusive term which subsumes fundamentalists. Often, however, “evangelicalism” is used in opposition to “fundamentalism” as a contrasting term. Fundamentalists accuse “evangelicals” of not taking biblical doctrine seriously enough and not adhering to a truly Christian life. Evangelicals in turn consider that fundamentalists are too rigid and closed-minded in their doctrine, thus weakening the primary evangelical goal of preaching the Gospel to, and converting, as wide an audience as possible. To evangelicals, evolution may not be an important issue, or, if it is, they are very often old-earth creationists. Fundamentalists, with their insistence on biblical inerrancy and literalism, generally feel obligated to oppose evolution directly.

Fundamentalism is sometimes used as a term which includes Pentecostalism, but again, these two terms may be used in opposition to one another. Fundamentalists insist on sola scriptura: the Bible as sole source of God’s revelation. This “Bible only” attitude contrasts with Pentecostalism, which admits of and encourages other sources of revelation: healing by laying on of hands, speaking in tongues, and other manifestations of the Holy Spirit. God, in the person of the Holy Spirit, frequently communicates directly with Pentecostals, above and beyond scripture. Fundamentalists such as Jerry Falwell often imply that they receive advice from God, but, when asked directly, Falwell says that he does not speak directly with God. Pentecostalism, derived from Holiness and Perfectionist movements which taught that spirit-filled believers would exhibit outward signs of this state of grace, “officially” began with ecstatic outbreaks in the Azusa Street Mission in Los Angeles in 1906. As at the original Pentecost, when the Spirit descended upon the Disciples and they spoke in tongues, and were commanded to bear witness to Christ, Pentecostals seek flamboyant manifestations of the Holy Spirit (sometimes including snake-handling and similar practices) and claim direct revelation from God. There are a number of Pentecostal denominations (e.g. the Assemblies of God, to which Jimmy Swaggart and Jim Bakker belonged). There are also elements within non-Pentecostal denominations, and also within the Catholic church, which share these beliefs; these elements are generally referred to as “charismatics.” Pat Robertson is a charismatic Baptist.

Pentecostals typically affirm belief in the “fundamentals,” and in much the same doctrine as strict “Bible only” fundamentalists, and seem willing to be classified with fundamentalists. Fundamentalists do not reciprocate this to the same extent, however, and tend to be suspicious of Pentecostals as infected with wild (even demon-inspired) extra-biblical beliefs. As Marsden puts it (1980:94):

Despite close resemblances of Pentecostals to “fundamentalists,” Pentecostals were only tangentially part of the fundamentalism of the 1920s. Pentecostals often identified themselves as “fundamentalists,” read fundamentalist literature, and adopted anti-Modernist and anti-evolution rhetoric; yet other fundamentalists seldom welcomed them as allies or called them into their councils. The influence, then, was largely in only one direction, from fundamentalism to pentecostalism.

Some Pentecostals are relatively unconcerned with evolution, or give lip service to anti-evolutionism without much commitment. Others, such as Swaggart, are fiercely anti-evolutionist. Aimee Semple McPherson, the celebrated preacher of the 1920s, campaigned ruthlessly against evolution from her Angelus Temple in Los Angeles. Even the most dedicated Pentecostalist creationists (such as Swaggart), however, tend to be old-earthers. In general, fundamentalists in the narrower sense of the term tend to be more uniformly committed to strict creationism.

Fundamentalism, as noted earlier, is a *trans*-denominational phenomenon. There are relatively few wholly “fundamentalist” denominations, though there are strong fundamentalist wings in many other denominations. Similarly, few denominations are officially anti-evolutionist, though creationism is a strong element among members of many different denominations. None of the mainline denominations opposes evolution: all either espouse it openly or have at least come to terms with it. (This fact has often been pointed out by anti-creationists, but it deserves to be more widely known.)

Also already noted is the tension between strict fundamentalism and Pentecostalism, and also evangelicalism, though these are all closely related (and overlapping) conservative Protestant movements. Fundamentalists consider some of the denominations and sects which are most opposed to evolution to be *cults*, adding confusion to the “creationist” movement. The Jehovah’s Witnesses, Armstrong’s Worldwide Church of God, and the Mormons are all considered heretical cults (van Baalen 1938, Larson 1982, Martin 1985). Some fundamentalists classify Seventh-day Adventists as a cult also, primarily because they hold Ellen G. White’s writings to be divinely inspired (e.g. Hoekema’s *The Four Major Cults*), but other fundamentalists consider them marginally orthodox (e.g. fundamentalist cult expert Walter Martin), noting their acceptance of many fundamentalist doctrines, and in particular their strong insistence on literal creation and the the Flood.

Of the denominations which oppose evolution, the Seventh-day Adventists have been perhaps the most consistent foes of evolution. Adventess prophetess Ellen G. White opposed evolution relentlessly, and advocated strict, young-earth creationism and a worldwide catastrophic Flood as the shaper of Earth’s geology (White 1958, 1986). George McCready Price, inspired by White, reinvented the “science” of Flood Geology and campaigned for strict creationism throughout the first half of this century. Seventh-day Adventists have produced an inordinate share of the creationists literature, though there are not many more than half a million in this country. Among them, besides Price: E.J. Waggoner (1894), Alonzo Baker and Francis Nichol (1926), Lucas Reed (1919), Harold W. Clark (1929, 1940, 1946, 1947), Cyril and Donovan Courville (1941, 1971),

Frank Lewis Marsh (1941, 1947, 1950, 1963, 1967, 1976), Reu Moen (1951), Harold Coffin (1969, 1983), Richard Ritland (1970), Harry Baerg (1972), George Javor (1979), Rene Noorbergen (1974), Richard Utt (1971), George Vandeman (1978, 1984), Leo Van Dolson (1979), Gerald Wheeler (1975), Arthur Ferch (1985), and Robert Gentry (1986).

The Jehovah's Witnesses have also had a major influence on creationism, since they proselytize aggressively and have always been firmly anti-evolutionist. They also number somewhat over half a million in the U.S. Their 1967 anti-evolution book *Did Man Get Here by Evolution or by Creation?* reached millions, as have frequent creationist articles in their free *Watchtower* magazine. In 1985 they produced a sequel to their 1967 classic, *Life—How Did It Get Here? By Evolution or by Creation?*. Both books are written in a plain, earnest style, and are packed with quotes from both scientific and popular sources. The Witnesses were founded by Charles Taze Russell; afterwards, the Dawn Bible Students and the Laymen's Home Missionary Movement split from the followers of Joseph Rutherford (whose followers first adopted the name Jehovah's Witnesses). Each of these related groups has published creationist works (Russell 1941; Dawn Bible Students 1952, n.d.; Laymen's Home Missionary n.d.; Rutherford 1927). Laymen's Home Missionary still sells Paul S.L. Johnson's 1938 tome *Creation*.

Herbert W. Armstrong's Worldwide Church of God has well under a hundred thousand members (Mead and Hill 1985), but also proselytizes strongly against evolution with its free *Plain Truth* magazine and "World Tomorrow" telecasts.

Other fundamentalist denominations which have contributed to the creationist movement include the Mennonites (e.g. Chester Lehman 1933, Bolton Davidheiser 1969, G. Richard Culp 1975, Lester Showalter 1970). Philip Gosse was a member of the Plymouth Brethren; more recently, NYU professor Carl Theodore Schwarze (1942, 1957a-b). Of the Grace Brethren, the most prominent contributor has been John C. Whitcomb (1973, 1975, 1984, 1986, 1979 [with DeYoung]). Whitcomb co-authored the 1961 *Genesis Flood* with Henry Morris; also Donald DeYoung (1985), Weston Fields (1976), and the faculty of Grace Theological Seminary (1979).

The Churches of Christ have produced a number of strict creationists. *A Critical Look at Evolution* (Camp, ed., 1972) is a volume by Church of Christ members, including England, Dean, Sears, Artist, and Bales. Bert Thompson and Wayne Jackson, founders and co-leaders of Apologetics Press and editors of *Reason and Revelation*, have written many creation-science works (Thompson 1981a-b, 1985, 1986a-b, n.d.; Jackson 1980). Other Church of Christ creationists: F. Furman Kearley (1974), James Bales (1975), Jack Wood Sears (1969), Russell Artist (1966, 1969), Arlie J. Hoover (1977), Ward and Kay Ellsworth (1975), who were active in promoting creationism in Washington State public schools, Jon Gary Williams (1970), Boeing engineer A.O. Schnabel (1974), John Clayton (1983), and old-earth creationist Don England (1972, 1983). Among the several colleges affiliated with the Church of Christ is Pepperdine University in Malibu, California. Biologist Douglas Dean of Pepperdine is an active promoter of creation-science; he contributed to the CSRC series (1971), the 1974 CRS textbook (along with Artist), and has lectured at local and national creation-science meetings (1979).

Among Pentecostal denominations, the most relentless and effective opponent of evolution, Jimmy Swaggart, comes from the Assemblies of God (though he was defrocked following his 1988 scandal). Vernon Grose, largely responsible for precipitating the California textbook controversy in 1969, is also an Assembly of God

member. In the 1920s, Aimee Semple McPherson, founder of the Four Square Gospel Church, campaigned against evolution in Los Angeles. The Church of the Nazarene also opposes evolution; e.g. David Riegler (1971). Maranatha Christian Church, which functions as a denomination (each chapter of Maranatha Campus Ministries is officially a church), is charismatic; the Society for Creation Science is a key ministry of Maranatha.

Of the major denominations, which include fundamentalist wings but are not wholly fundamentalist, the Southern Baptists are often considered as being the strongest opponents of evolution. This reputation is somewhat misleading. As discussed previously, Southern Baptists (and other southern churches) began to emphasize their opposition to “northern” liberalism, including evolution, following their split from the northern Baptists around the time of the Civil War. Southern Baptists have indeed produced many prominent creationists, notably Henry Morris and the rest of the ICR staff, but this is in part due simply to their size. The Southern Baptist Convention is the largest single denomination in the country, with over 14 million members. Famed 1920s fundamentalist leader and anti-evolutionist William B. Riley was a Southern Baptist; fiery fundamentalist preacher and anti-evolutionist T.T. Martin was also Baptist. W.A. Criswell, pastor of First Baptist Church in Dallas, the largest Protestant church in the country, has attacked evolution in *Did Man Just Happen?* (1957) and *Why I Preach That the Bible Is Literally True*²⁴ (1969). (Criswell, along with Falwell, has conducted official prayers at the Republican Convention.) Pat Robertson is a charismatic Southern Baptist. Not all Southern Baptists are fundamentalists, though: in fact the Convention has been riven by dissension recently between “moderates” and “conservatives” (i.e., fundamentalists). Though about equal in number, the conservatives have managed to retain political control of the convention for the past several years, and have called for affirmation of biblical inerrancy, including creationism. Each Baptist congregation is autonomous, however, so there is wide acceptance of both moderate and conservative doctrines.

There are also a number of independent, evangelical, and “primitive” Baptist groups. Militant fundamentalist and anti-evolutionist J. Frank Norris founded the World Baptist Fellowship in the 1920s; in 1950 the Baptist Bible Fellowship, to which Jerry Falwell belongs, split off from this group. Norris’s son George Norris denounced evolution in *Creation—Cataclysm—Consummation* (1973). Thomas Heinze, who wrote the *Creation Vs. Evolution Handbook* (1973), is a Conservative Baptist member (the Conservative Baptist Association is an outgrowth of the Northern Baptists). Tim LaHaye’s Scott Memorial Baptist Church, which sponsored the Institute for Creation Research, is an independent Baptist church.

Lutherans are also sharply divided on evolution and other modernist-fundamentalist issues. The Missouri Synod Lutherans, founded by German immigrants, were engaged in a bitter struggle between “modernists” and fundamentalists in the 1960s in which the fundamentalists triumphed—they have remained a strongly conservative group. Among the fundamentalist leaders in this struggle was Herman Otten, who helped introduce Walter Lang to creationism. Missouri Synod Lutherans (numbering several million in the U.S.—the second largest Lutheran group) have been quite prominent in the modern creation-science movement since its beginnings. Of the 18 original Board of

²⁴ Recently critics have charged that passages of this book were plagiarized. Church authorities, who are investigating the charges, concede that some corrections need to be made.

Directors of the Creation Research Society founded in 1963, six were Missouri Synod Lutherans, including Walter Lammerts, Wilbert Rusch, John Klotz, and Paul Zimmerman. (Five were Baptists, including Morris and Gish; two were Seventh-day Adventists: Frank Marsh and Clifford Burdick; there was one each from the Reformed Presbyterian Church and other denominations.) The leadership of the Bible-Science Association, founded by Walter Lang, has been predominately Missouri Synod Lutheran (e.g. William Overn, Paul Bartz, and Russell Arndts). The Lutheran Research Forum, a Missouri Synod group, explores Bible-science relations (e.g. *Theology and Science* 1973). The Lutheran Science Institute, based in Wisconsin Lutheran College in Milwaukee, is made up of “active creationists” in the Wisconsin Synod under the leadership of Gerald Mallmann. Earlier Missouri Synod Lutherans who promoted creationism include Theodore Handrich (1953), Theodore Graebner (1925, 1929, 1943), Alfred Rehwinkel (1951), Leander Keyser (1926), and Herman Schaars (1970).

Other conservative Lutheran groups include the Evangelical Lutheran Synod, formerly the Norwegian Synod, of which Byron Nelson was a member, and the Wisconsin Evangelical Lutheran Synod, which produced the anthology *Is Evolution the Answer?* (Northwestern Lutheran 1967). Formed by more recent immigrants, these groups have sought to maintain their identity by differentiating themselves from more established and liberal Lutheran bodies and insisting on a rigorously conservative interpretation of the Bible.

The doctrine of biblical inerrancy was largely developed by Presbyterians such as Charles Hodge (who strongly opposed evolution) at Princeton Theological Seminary in the last century. Williams Jennings Bryan and Harry Rimmer were also Presbyterians. As with many other denominations, fundamentalists struggled with liberals for control of the Presbyterians during the 1920s and '30s. In 1936 Cornelius Van Til and Gresham Machen, who was once offered the directorship of the creationist Religion and Science Association (Morris 1984b:113), seceded from the Presbyterian Church and Princeton Theological Seminary to form the fundamentalist Orthodox Presbyterian Church and Westminster Theological Seminary in Philadelphia. Part of their group then split off again to form the Bible Presbyterian Church, led by notorious anti-communist crusader Carl McIntire; Robert Kofahl of the Creation Science Research Center is also a Bible Presbyterian. (Of the other CRSC leaders, Jean Sumrall is Missouri Synod Lutheran, and Segraveses are Baptist.) Rousas Rushdoony, an Orthodox Presbyterian disciple of Van Til, is an outspoken and articulate creationist, and chief theoretician of the Christian Reconstructionist movement (see later). It was Rushdoony, as already noted, who got Presbyterian and Reformed Publishing Company to publish Whitcomb and Morris's *Genesis Flood* in 1961. Charles Craig, the owner of Presbyterian and Reformed, also publishes fundamentalist, creationist books (Rushdoony, Dooyeweerd, Hebden Taylor, Marshall and Sandra Hall, Gordon Clark) at his Craig Press.

Earlier Presbyterian anti-evolutionists include Canadian geologist Sir John Dawson, Floyd Hamilton (1946), and Oscar Sander (1951). J. Vernon McGee, pastor of the Church of the Open Door in Los Angeles, originally a fundamentalist stronghold (but later better known for its landmark “Jesus Saves” sign), popularized creationism and other fundamentalist doctrines in his “Thru the Bible” radio broadcasts, which are still aired. (McGee 1964 is an attack on evolution published by the Church of the Open Door; McGee 1980 also includes his creationist “Thru the Bible” sermons). Televangelist D.

James Kennedy, pastor of Coral Ridge Presbyterian Church in Florida, is fast becoming one of the most effective creationist proselytizers.

The Reformed churches originated in Switzerland during the Reformation as Protestants who, as followers of Calvin, distinguished themselves from the Lutherans. Churches in Switzerland, The Netherlands, and Germany retained the name “Reformed”; reformed churches in England and Scotland became Presbyterian; in France they were called Huguenot. The Reformed churches in the U.S. are mostly Dutch in origin, and are strongly Calvinist and conservative. The largest branch is the Reformed Church in America. W.R. Gordon delivered an impassioned attack on evolution (1878) at the Theological Seminary of New Brunswick in New Jersey, which was established as a Reformed Church school. (The Seminary was the first in the U.S.; the College was later renamed Rutgers.)

Almost as large, the Christian Reformed Church, another Dutch Reformed branch, has produced creationists of varying types. Calvin College in Grand Rapids, Michigan, is a Christian Reformed school; Enno Wolthuis was a faculty member who emphasized creationism (1963). More recently, old-earth creationist Davis Young has attacked Henry Morris’s *Flood Geology* (1977, 1982); in 1987 he and Howard Van Till, who advocates what he calls the “creationomic” view (1986) were investigated by the Christian Reformed Church for collaborating on a new book, *Science Held Hostage*, which criticizes both naturalistic evolutionists and young-earth creationists (they were fully acquitted; see Fezer 1988a). George Marsden, whose masterful and critical analysis of fundamentalist (1980) has become a required starting point for any serious study of the movement, was also on the Calvin College faculty (currently he is at Duke University). Dordt College in Iowa, another Christian Reformed school, is the center of the “Cosmonomic” movement inspired by Dooyeweerd; Dordt College professor Russell Maatman (1970) is a spokesman for this type of creationism.

Another, smaller Dutch Reformed branch is the Protestant Reformed Churches in America, to which Homer Hoeksema (1966) belonged.

Herman Dooyeweerd was a strongly Calvinist Dutch philosopher whose massive 1957 treatise outlining his “Cosmonomic” philosophy called for the total reformation of science (and all other disciplines) along strictly fundamentalist Christian lines. Dooyeweerd’s followers include J.J. Duyvene De Wit, a Dutch South African zoologist who reconstructed biology according to Christian (creationist) principles (1963), and Hebden Taylor, whose *Evolution and the Reformation of Biology* (1967) calls for a creationist Reformed approach to biology.

Earlier Calvinist anti-evolutionists include Valentine Hepp, who in his 1930 *Calvinism and the Philosophy of Nature* (1930) “called for a total rethinking of geology in terms of recent creation and a global flood” (D. Young 1982:64). More recently, philosopher Gordon Clark has asserted that science must be made subservient to Christian revelation, which demands strict creationism (1964, 1984). John W. Robbins’ Trinity Foundation in Maryland champions Clark’s teachings.

The Church of Jesus Christ of Latter-day Saints (Mormons), a large, conservative denomination, includes many creationists, but, as Duane Jeffery has pointed out (1973), the position of the Mormon Church regarding evolution has not been made explicit. A literal reading of the creation account in the Book of Mormon seems to preclude evolution, however, and most Mormons assume that their church teaches anti-

evolutionism, and follow in this belief (Keown 1986). (Jeffery, a Brigham Young University zoologist and an active anti-creationist [e.g. “Dealing with Creationism” in the journal *Evolution*, 1983], argues that Mormon doctrine is not necessarily hostile to evolution.)

Melvin Cook is one of the few prominent Mormons in the creationist movement. Cook, a Yale Ph.D., former professor of metallurgy at the University of Utah and later president of a chemical company, is an expert on explosives: he won the Nitro-Nobel award for development of safe slurry explosives and is acknowledged as a leader in blasting technology (Di Salvatore 1988). In 1957 he published a letter in *Nature* regarding atmospheric helium formed from natural radioactive decay, which, given the evolutionary timescale, is present in smaller than expected amounts; this has become a standard young-earth creationist dating argument. His 1966 book *Prehistory and Earth Models* contains strong criticisms of evolution and standard young-earth creationist arguments. He also co-authored *Science and Mormonism* (Cook and Cook 1967). (Cook’s son is presently a candidate for governor of Utah.)

Frank Salisbury, a Utah State University botanist with a Caltech Ph.D., has criticized natural selection and neo-Darwinism in *Nature* and the *American Biology Teacher* (1969, 1971). In his book *The Creation* (1976), he endorses the creationist arguments in ICR books and other creation-science works. He also notes (citing Jeffery) that the Mormon Church has not yet taken any official position on the creation-evolution issue. Salisbury also worked with UFOlogist J.A. Hynek after writing a 1962 *Science* article on Martian biology, and later wrote a favorable introduction to a 1967 UFO book, *Flying Saucer Occupants*, by Coral and Jim Lorenzen, and a 1974 book *The Utah UFO Display* (Lang, ed., 1975). Other Mormon creationists include Kenneth Skeem (1981) and Dean Zimmerman (1976).

RELIGIOUS DIVERSITY: CATHOLIC

There is still considerable diversity of opinion among Roman Catholic believers regarding evolution. The Catholic Church, larger than any single Protestant denomination in this country, has officially reconciled its doctrine to allow for evolution. The prestigious Pontifical Academy of Science affirmed, for instance, “We are convinced that masses of evidence render the application of the concept of evolution to man and the other primates beyond serious dispute” (see, e.g., Lowenstein 1982). Despite this, however, many Catholics have opposed evolution in the past, and many lay Catholics today still assume (mistakenly) that their Church officially opposes it. Quite a few individual Catholics remain hostile to evolution, and several of the prominent creationist lobbyists of the past few years have been Catholic. Recently, a number of small Catholic creationist organizations have sprung up around the country. Protestant fundamentalists have already joined forces with conservative Catholics in opposing abortion; now, more Catholics are becoming involved in other Religious Right issues as well—even though many Protestant fundamentalists (notably Swaggart and Chick) remain fiercely anti-Catholic.

In 1877 Constantin James, a French Catholic physician, wrote *On Darwinism, or the Man-Ape* as a refutation of Darwin’s *Descent of Man*. According to A. White (1960: (1)75), “Dr. James not only refuted Darwin scientifically but poured contempt on his

book, calling it ‘a fairy tale,’ and insisted that a work ‘so fantastic and so burlesque’ was, doubtless, only a huge joke...” Pope Pius IX thanked James for this book in which he refutes, by “true science,” the aberrations of Darwinism masquerading as science:

A system which is repugnant at once to history, to the traditions of all peoples, to exact science, to observed facts, and even to Reason itself, would seem to need no refutation, did not alienation from God and the leaning toward materialism, due to depravity, eagerly seek a support in all this tissue of fables... And in fact pride, after rejecting the Creator of all things, and proclaiming man independent...goes so far as to degrade man himself to the level of the unreasoning brutes, perhaps even of lifeless matter... [Pius IX, quoted in White 1960:(1)75]

The Pope also made James a member of the Papal Order of St. Sylvester. The Archbishop of Paris urged him to write a new edition stressing the scientific truth of Genesis; James did so, titling his revised (1892) edition *Moses and Darwin: The Man of Genesis Compared with the Man-Ape, or Religious Education Opposed to Atheistic*.

St. George Mivart, the “renegade Darwinian” who became one of Darwin’s most persistent and troublesome critic, was a convert to Catholicism. British Catholic writer Hilaire Belloc attacked H.G. Wells’s strongly evolutionist *Outline of History* (1920) with two works (1927a, 1927b), presenting many of the standard objections to evolution. Belloc’s friend, novelist and journalist G.K. Chesterton, was also a lay expositor of Christianity who included anti-evolution arguments in some of his works (e.g. 1925). Continuing this literary tradition, Mortimer Adler, the University of Chicago neo-Thomist philosopher of Great Books fame, expressed extreme skepticism towards evolution in several works (1937, 1940, 1967), calling evolution a “popular myth,” an elaborate conjectural history which vastly exceeds the scientific evidence (quoted in Jauncey 1961:58).

Alfred Watterson McCann wrote a scathing but witty and amusingly satirical attack on evolution called *God—Or Gorilla: How the Monkey Theory of Evolution Exposes Its Own Methods, Denies Its Own Inferences, Disproves Its Own Case* in 1922. He denounces the “ape-man hoax,” and expresses outrage and amazement at the distortions, pretensions, and plain bad science of the evolutionists. McCann, though Catholic himself, says that Augustine, Aquinas, and other Catholics have proven vulnerable to faulty evolutionist science. He presents many of the standard creation-science arguments, especially criticisms of the alleged fossil prehumans, but also attacks evolutionist claims based on embryology, convergence, the horse series, blood anti-serum reactions and other biochemical evidence. McCann, fortuitously enough, begins with a chapter ridiculing Piltdown Man as a proposed man-ape (this was before its exposure by scientists as a hoax, though some scientists had always been skeptical—McCann in fact relies on some of these skeptics for his debunking of Piltdown); he then directs his scorn upon Trinil (Java) Man and many other proposed ancestors or missing links, gleefully describing the confusion and conflicting opinions of paleoanthropologists regarding the age and relationship of these fossils.

The scientist, says McCann, knows there are no missing links and “admits there is no evidence in favor of any such ascending evolution.” Though he objects primarily to the “ape-manologists,” he also argues that there is no evidence of descent between any major group of organisms. He rebukes H.G. Wells at great length for the evolutionist propaganda in his *Outline of History*, and castigates Haeckel for his fraudulent embryological samples and other lies. “Psychical activity” and the esthetic appeal of

music are, to McCann, self-evidently not explainable by materialistic evolution, which are helpless in accounting for mind and genius. McCann's chief objection is that evolution ignores God and denies the soul, and reduces man to a brutish, apish "thing":

Of course if there is no God, and no soul, and no free will, and nothing but a monkeyfied descent from the lemur, then it follows that conscience itself is a mere movement of atoms; that it cannot hold in check man's greed or his lust, his passions or his nameless instincts... By whom can a soulless man, a THING evolved from an ape, be held accountable? ... This THING without soul, the prince of brute creation, is himself a brute, and the moral order ends. [1922:272-273]

This new "chemic creed," that out of the lowest clod man has developed in common with the toad and the cockroach, through the power of material evolution, freed from the intervention of a God, rests squarely on a foundation compounded of the romance, invention and intervention of theorists who have been caught in the act of forging proof, of faking plates, of lying in the name of "science" in order to fool the gullible who haven't time or training sufficient to examine the facts for themselves. [1922:273-274]

Though McCann's book is full of quotes from the scientific literature, fellow Catholic George Barry O'Toole, professor of theology, philosophy and zoology at Seton Hill College, while praising McCann's anti-evolutionism, criticized him for relying on sophistry, extreme bias, and inaccurate arguments. O'Toole included these criticisms in *The Case Against Evolution* (1926), which carries the "Nihil Obstat" of the Catholic censor, and the "Imprimatur" of the Archbishop of New York. (The "Nihil Obstat" does not mean that the Church necessarily agrees with all ideas or theories contained therein; merely that the work contains "nothing that is opposed to faith or morals.") This literate attack on evolution is likewise full of scientific quotes and references, and contains no biblical or religious references. O'Toole demonstrates "that Evolution has long since degenerated into a dogma, which is believed in spite of the facts, and not on account of them" (1926:xiv). Comparison with the Galileo affair shows that the evolution hypothesis, unlike heliocentricity, does not hold up under scientific investigation. Galileo's theory was quickly and decisively confirmed, but, says O'Toole, "the whole trend of scientific discovery has been to destroy, rather than to confirm, all definite formulations of the evolutionary theory, in spite of the immense erudition expended in revising them" (1926:xii).

According to O'Toole, science has rejected the theory of natural selection, which was the only original element of Darwinian evolution, because Mendelism now shows that new variations are not hereditary. O'Toole points with some satisfaction to the rivalry between Darwinian Transformism, relying on natural selection, and Lamarckism, arguing that each proves the other wrong (1926:10-16). Lamarckians argue rightly that natural selection would not allow gradual evolution of incipient traits to survive, and Darwinists have shown that acquired characteristics cannot be inherited.

Besides quoting Bateson and other anti-Darwinian scientists, O'Toole praises G.M. Price's geological arguments. Following Price, he exposes the circular reasoning employed by evolutionary geologists in dating rocks and fossils (1926:112): "Our present classification of rocks according to their fossil contents is purely arbitrary and artificial, being tantamount to nothing more than a mere taxonomical classification of the forms of ancient life on our globe, irrespective of their comparative antiquity." "The paleontological argument," he concludes, is simply a theoretical construction which presupposes evolution instead of proving it," citing the supposed evolution of the horse and other examples from the fossil record (1926:126).

In the second half of his book O'Toole deals with the origin of life, of the human body, and of the soul. Regarding the possibility of life originating from non-life, he declares that a "chaos of unassorted elements and undirected forces" cannot produce life. He refutes the standard arguments for the evolution of man from other species, and explains away the various fossil pre-humans, using now-familiar creation-science arguments. If the soul is spiritual, he argues, it "cannot be a product of organic evolution," for this would imply that spirituality is inherent in matter, and that the difference between man and beast is not "essential" but merely one of degree. Rejecting this notion of materialistic monism, he asserts that the soul must be directly created by God.

In the end, O'Toole reveals that his primary objection to evolution is amoral one.

Had evolutionary enthusiasts adhered more strictly to the facts, had they proceeded in the spirit of scientific caution, had they shown, in fact, even so much as a common regard for the simple truth, the 'progress of science' would not have been achieved at the expense of morals and religion. As it is, this so-called progress has left behind a wake of destruction in the shape of undermined convictions, blasted lives, crimes, misery, despair, and suicide. It has, in short, contributed largely to the present sinister and undeserved triumph of Materialism, Agnosticism, and Pessimism—so fittingly characterized as the three D's of dirt, doubt, and despair. [1926:354-355]

If man is but an animal, merely the product of chemical reactions, if immortality and free will are illusions, "then morality ceases to have meaning, right and wrong lose their significance, virtue and vice are the same." The "life philosophy inculcated by materialistic evolution is so intolerably unnatural and revolting that neither society nor the individual can survive within the lethal shadow of its baleful influence" (1926:357).

In *Thoughts of a Catholic Anatomist* (1927), Thomas Dwight complained about the stultifying influence of Darwinian theory on biology and biologists: "How very few of the leaders in the field dare to tell the truth as to the state of their own minds! How many feel themselves forced in public to do lip service to a cult that they do not believe in!" (quoted in J.G. Williams 1970:5).

Douglas Dewar, president of the Evolution Protest Movement in England, who wrote many influential creation-science books from the 1930s to the '50s, as previously discussed, was a Catholic, and also wrote for the *Catholic Herald*. Arnold Lunn, another British Catholic creationist active in the 1930s (also discussed previously), relies heavily on Thomas Aquinas's proofs of God; he also endorses the miraculous Lourdes cures, and argues for the truth of psychic phenomena as proof of the supernatural.

Rev. Patrick J. O'Connell, a Jesuit and former missionary in China, wrote *Science of Today and the Problems of Genesis: The Six Days of Creation, the Origin of Man, the Deluge and the Antiquity of Man* in 1959.

The object of this book is to give the scientific conclusions about the Six Days of Creation and the origin of man arrived at during the past few years... and to show that these conclusions are in agreement with the Mosaic account of Creation, and are a vindication of the Papal Encyclicals issued for its interpretation. [1969:(I)vii]

This work (actually two separate works in one volume) carries the "Nihil Obstat" and "Imprimatur"; the second (1969) edition, published by Christian Book Club of America, includes a letter from the Archdiocese of Los Angeles confirming that this edition "lies steadfastly within the confines of orthodoxy" (1969:(I)i). O'Connell argues that the 1893

Encyclical *Providentissimus Deus* of Pope Leo XIII declares that the divine truth of the Bible, which is wholly free of error, applies to physical and historical matters as well as to faith and morals. This conclusion was strongly reaffirmed, says O'Connell, by Pius XII in his 1950 *Divino Afflante Spiritu*. In *Humani Generis*, issued that same year (1950), Pius wrote that the evolution of man had not been proved. Catholics are allowed to investigate the evolution of man, decreed the Pope, but are forbidden to teach it as definite fact. O'Connell quotes a review in *L'Osservatore Romano*, the Vatican journal, which says his book is in "perfect agreement" with *Humani Generis*. Evolution "has been a potent factor in promoting atheism and communism," warns O'Toole. Darwin became an atheist after writing his *Origin*, he says, thus "his whole system, which is a tissue of absurdities, is based on a supreme absurdity."

O'Connell's interpretation of the Galileo affair is that the church was correct. The church did not convict him simply because he defended Copernicus' heliocentric theory, argues O'Connell. O'Connell points out that Bellarmine said that it was acceptable to advocate the Copernican system as the "best explanation of the celestial phenomena provided no reference was made to the apparent conflict with the Bible." But by stating that the sun was immovable, however, Galileo was claiming that the Bible contained an error—namely, Joshua's command for the sun to cease moving. It was this statement that the church declared heretical in its condemnation of Galileo (1969:(I)21). O'Connell argues that the church was right, since modern science has shown that the sun does indeed move (though it doesn't revolve around the earth). He further surmises that God prolonged the day for Joshua by stopping the motion of the sun and the whole solar system, not by stopping the earth's rotation (1969:(I)22-23).

Science proves that there is no genetic link between man and beast, declares O'Connell. He refutes all the alleged fossil ape-men (he also summarizes these arguments in his 1973 book). Study of Bible chronologies, archeological data, and other scientific evidence shows that the creation of man occurred between 5,000 (or possibly even less) and 15,000 years before the Flood (1969:(II)135). O'Connell adds that he had a "private revelation" that Adam and Eve, after being forced out of Eden, moved to Palestine and were buried at Calvary (1969:(II)99; 1973:14).

O'Connell cites and refutes many Catholic books supporting evolution, and quotes from many which reject evolution. O'Connell was especially incensed by Teilhard's religious evolutionism, and suggested that Teilhard was involved with the perpetration of the Piltdown hoax, and also accused him of falsifying evidence for Peking Man, which he describes as a "fraud...used to confirm the Red propaganda that Christianity is based on myths" (1969:(I)134-137; 1973:68).

O'Connell enthusiastically endorses the work of Ernesto Ruffini, former professor of Scripture in the Propaganda University in Rome, and later a Cardinal member of the Pontifical Biblical Commission. O'Connell says that Ruffini, in his book *The Theory of Evolution Judged by Reason and by Faith* (1959), "gives evidence from the Old and New Testament, from the writings of the Fathers, the Schoolmen and the theologians of the Church and from the various Papal Encyclicals on the subject to show that the theory that man's body was evolved from a lower animal is incompatible with the teaching of the Catholic Church properly understood" (1969:(I)176). Ruffini, who O'Connell quotes liberally, examined and refuted all the arguments for evolution made by Darwin and his followers, showing that there is no proof of common descent, nor even of evolution of

any species from another species. If it is admitted, as Catholic doctrine requires, that God created man's soul, argues Ruffini, then why not allow that He created man's body directly from the dust, instead of bestowing a soul on evolved beasts? (quoted in O'Connell 1969:(I)159-160). O'Connell also endorses and quotes at length from *Sacrae Theologiae Summa*, a 1952 work written by Spanish Jesuits, especially the section in Volume II on the origin of man by Fr. Sagues, which firmly rejects evolution.

A.N. Field wrote a particularly shrill denunciation of evolution called *The Evolution Hoax Exposed*, originally published in 1941 as *Why Colleges Breed Communists*. It is still available in a 1971 reprint edition by TAN, a conservative Catholic publisher. The 1941 edition was published by Christian Book Club of America, of Hawthorne, California, which also published O'Connell's books.²⁵ Field exposes evolution as sinister anti-Christian propaganda.

Evolution is not a science at all. It is a religion, and a very low-grade religion, with its hymns played in jazz and syncopated cacaphony, and its sanctuaries adorned with cubist art—the religion of the Godless, of the crazy intellectuals who don't know anything about anything except knowledge. [1971:67]

Field quotes many anti-evolutionist and anti-Darwinian scientists who have seen through the evolution hoax, and insists that modern science (when it is honest) is destroying evolution. He covers the usual creation-science arguments, stressing that all proposed hominid ancestors are fakes or just apes. After discussing the pagan roots of evolution, Field declares that modern evolution theory is a Satanic conspiracy invented in atheist revolutionary France (1971:96-97). He accuses colleges of destroying faith by propagation of evolution: “The modern university college is a machine for de-Christianising and demoralising the community” (1971:101). Field gives much attention to the evil offspring of evolution: communism, determinism, psychoanalysis, the League of Nations, etc. As proof of his claim that “Evolutionist worship of Bolshevism is reciprocated by Bolshevik worship of evolution,” Field cites a report of a Soviet expedition which attempted to fertilize female chimpanzees with human sperm in order to produce “human apes” and thus prove that God doesn't exist (1971:75).

What has Darwinian monkey-man materialism produced since it first appeared? Nothing but dirt and degradation all along the line... Whether we seek our ancestors in the Garden of Eden or the monkey-house, it is faith that guides us equally to the one quarter or the other: upwards to the stars and immortal harmonies beyond this muddy vesture of decay; or downwards to the dark earth and the beasts that perish. [1971:68]

Paula Haigh, a reference librarian, formed an organization (now defunct) called the Catholic Center for Creation Research in Kentucky. The CCCR published Haigh's own booklet *What's Wrong with Evolution?* (1975; also published [n.d.] by the Bible-Science Association). Haigh advances the standard creation-science arguments. She discusses Aquinas and Augustine, suggesting that the latter, rather than condoning theistic evolution, was actually anticipating Mendelian genetics (n.d.:32). However, she relies heavily on Protestant creation-science, saying that Protestants have been more

²⁵ CBC published several anti-evolution books in the 1950s; it is now called Omni Publications (Omni/Christian Book club) and is listed as a publishing imprint of Noontide Press, the historical revisionist organization. Omni/Christian Book Club is still strongly fundamentalist (Catholic), and carries many anti-evolution books, in addition to “revisionist,” anti-Jewish and pro-Nazi books.

vigilant in protecting the Bible than Catholics, and dismissing as “tiresome equivocations” all arguments by Catholic theologians which are not strictly creationist. Creation by God is an act, not a process, she insists. Because of the Galileo affair, Teilhard and others like him over-compensate in order not to offend science, and are too willing to accept all that science claims. Proper theology, claims Haigh, is really the “highest and best science.” Haigh argues that certainty that one possesses the truth does not lead to totalitarianism, as liberals accuse. Oppression and tyranny can only issue from vice; possession of God’s truth—true theology and science—is inevitably beneficial (n.d.:5).

The Catholic Creationist, the journal of Haigh’s CCCR, published a booklet by R.G. Elmendorf as a supplement in 1977. Titled “Consequences,” Elmendorf’s booklet proclaims that evolution is “nothing more than a bizarre biological bluff, a preposterous pipe dream, a fantastic phony hoax, a colossal academic swindle” (1977:1). Elmendorf decries the church’s divorce from science, resulting in the abandonment of the field to evolution, stating that the Bible and science need to be reunited. Evolution is accepted “not because it is scientifically valid but because men do not like to retain God in their knowledge, and evolution gives a way out...” (1977:11). Elmendorf blames evolution for all the evil trends in our society, parading long lists of evolution-based sins. “Peaceful coexistence with evolution has about the same chance of success as peaceful coexistence with sin. Satan is the instigator of both, and it just won’t work!” (1977:21).

Elmendorf repeats most of these arguments in his booklet *How to Scientifically Trap, Test and Falsify Evolution* (1978), published by the Bible-Science Association of Western Pennsylvania, which he then headed. An engineer who heads his own company, Elmendorf insists that the second law of thermodynamics is an insurmountable barrier to evolution—that evolution is in direct conflict with this basic law and has thus been decisively falsified. So certain is he that he offers \$5000 for proof that “evolution is scientifically possible” (judged by himself, of course). Evolution is an uphill process, he explains, but the Second Law proves that all processes must inevitably progress downhill. Elmendorf explains that living organisms—apparent exceptions to the Second Law—require a “creative trinity” for their “uphill” progress: external energy (an open system), structure and intelligence (an energy conversion mechanism), and coded genetic instructions. This “creative trinity” could not have evolved; it must have been created (Wilder-Smith emphasizes the same point). A friendly and whimsical eccentric who refers to himself as a “windmill-tilter,” Elmendorf distributes flyers and posters illustrating the “evil fruit” of evolution (namely, all of society’s evils) and advertising his \$5000 reward for proof of evolution. Elmendorf has no need to explain away the Church’s attitude towards Galileo; he is a confirmed geocentrist, and he also offers \$1000 for proof that the earth moves.

Paul Ellwanger, who drafted the model bill that the 1981 Arkansas creation-science law was based on, heads an organization called Citizens for Fairness in Education which lobbies for teaching of creationism. A Catholic, Ellwanger commented on “Creationist Materials for Catholics” in the *Creation Social Science and Humanities Quarterly* (1981).

According to a column in the *Santa Monica Outlook*, William Marra, a conservative Catholic philosophy professor at Fordham University in New York, was a democratic candidate for U.S. president in 1988 (Thorne 1988). The columnist had

never heard of Marra before, but I had seen several anti-evolution tape cassettes by Marra listed in the catalog of Keep the Faith, a fundamentalist Catholic organization in New Jersey (*Evolution and the Lordship of God, The Distractions of Evolution, Is Science Under a Cloud?*). The catalog describes Marra as chairman of the Roman Forum, a “Catholic action organization,” and a “popular lecturer on modern ethics and the flight from reason.”

A video by Marra, *The Evolution Controversy*, is offered by Children of Mary, another conservative Catholic group, in their periodical *Fidelus et Verus*. Children of Mary, which recently moved from California to Nebraska, is dedicated to teaching the “true” doctrines of the Catholic Church and to “combatting the heresies of modernism and humanism in the Church today.” They also carry Field’s *Evolution Hoax Exposed*, and much material on the Bayside Shrine of New York (the Marian apparition and prophecies), exorcism, and demands for return of the Latin Mass.

Keep the Faith also sells anti-evolution tapes by J.W.G. Johnson, *Miracles for Moderns* and *A Wolf in Sheen’s Clothing*. Johnson, an Australian Catholic, wrote *The Case Against Evolution* (1976), which was published by Haigh’s CCCR and distributed by Keep the Faith, and *The Crumbling Theory of Evolution* (1982), inspired by O’Connell (1969), an earlier version of which was printed by Haigh. Johnson’s books have the “Nihil Obstat” and “Imprimatur” from the Catholic censor and Archbishop of Brisbane. Johnson, like O’Connell and Haigh, contends that Papal pronouncements and other official Catholic documents support creationism and not evolution. He also makes the usual creation-science arguments, and cites many scientific references in addition to creationist works. “Demolishing the theory of evolution is the essential first step in manning the barricades against the modern anti-God assaults,” explains Johnson (1982:125), adding that the “definitive remedy [was] given in the ultimatum from heaven at Fatima in 1917” (the Marian apparitions and prophecies). Johnson refutes Teilhard’s evolutionism at length, and, following S.J. Gould and Bowden (1981) (and, earlier, O’Connell), accuses him of perpetrating the Piltdown hoax, as well as the Peking Man “hoax.”

William Crofut founded Catholic Creation Ministries in Skanateles, New York in 1983. Raymond Seaman, for some years the only other member of the group, is editor and publisher of their *Catholic Creationist Report*. In a letter to me (4-20-85), Crofut said that his initial objection to evolution was that “There was simply no way anyone was going to convince me I was evolved from an ape.” Crofut professes “total loyalty to the Pope” but insists that strict creationism is the only legitimate position a Catholic can take. His booklet *Creationism Is for Catholics* (1984) is a rebuttal to a paper “Catholics and Creationism” written by LeMoyne College professors for the Diocese of Syracuse. Crofut’s *Does Chemical Evolution Explain the Origin of Life?* (1985) is a rebuttal of Richard Dickerson’s 1978 *Scientific American* article. He accuses Dickerson of being recklessly speculative, and uses the standard (Protestant) creation-science sources to refute him. (One notable detail is that he quotes Robert Gentry as an “evolutionist.”)

In a tape from FireFighters for Christ of Westminster, California, “Evolution or Creation,” Wilder-Smith claimed that the Pope wrote to him requesting free license to translate one of his creationist books, *The Natural Sciences Know Nothing of Evolution* (1981) into Czech to be distributed free to all who requested it, as refutation of materialism.

Philip Fothergill, a Catholic botanist at King's College, England, though an evolutionist, was quite sympathetic to criticisms of Darwinism. He considered purely naturalistic evolution unsatisfactory, and argued that Darwinian natural selection was but a reflection of the naturalistic, mechanistic philosophy of the times. In *Historical Aspects of Organic Evolution* (1953), he quotes and discusses many of these anti-Darwinian scientists approvingly. Mentioning that he argued at length about evolution with creationist Douglas Dewar, he provides a list of the leading anti-evolutionist biologists. In *Evolution and Christians* (1961), Fothergill expands on his dissatisfaction with purely naturalistic evolution and the "deification" of natural selection. "It is right that any theory which seeks to prove that man is *merely* a product of evolution and nothing more should be combatted and exposed for all its fallacy," he wrote. He presents evidence supporting evolution, but also presents criticisms and difficulties. Fothergill said he considered evolution the "penultimate" expression of all life, but man alone the "ultimate." Fothergill's last two chapters concern evolution from the Catholic viewpoint. He generally affirms Papal opinions regarding evolution, and discusses ways of reconciling these with evolutionary biology. Adam may have been the first true human, he speculated, or the first of his race with spiritual capacity. It was Fothergill who devised the hypothesis, mentioned above, that Adam could have passed on his fully human genetic complement by marrying his offspring.

Pierre Teilhard de Chardin, because of his enormous influence, is another Catholic "evolutionist" who deserves mention in a discussion of anti-evolutionism. Teilhard was a Jesuit priest who became an active and enthusiastic paleontologist; he was involved in the Piltdown excavations and the "Peking Man" excavations. He became a geology professor at the Catholic Institute, and director of the Laboratory of Advanced Studies in Geology and Paleontology in Paris, and spent his final years with the Wenner-Gren Foundation in New York. Teilhard was influenced by Bergson and German *Naturphilosophie*, and advocated a mystical view of all-embracing evolutionism, presented in an obscure poetic style in several books, especially *The Phenomenon of Man* (1955). Julian Huxley, grandson of Darwin's champion T.H. Huxley, wrote a laudatory introduction to the 1965 English translation. (Like Teilhard, Huxley, who contributed to the Neo-Darwinian Synthesis, found cosmic significance in evolution. Huxley advocated a *Religion Without Revelation* in his 1941 book of that title: an evolutionary, secular humanism, a wholly naturalistic faith.)

Teilhard posited an immanent progressive drive embracing the entire universe: evolution as the fundamental unifying process of everything. Through love, people grow closer; eventually humans will evolve into a single super-organism. This final destination of evolution is Teilhard's "Omega Point." People would retain their own individual souls, but would also merge into the world soul, which Teilhard somehow equates with Christ. Man thus becomes deified; transmuted with the divine cosmic center. "Man discovers that he is nothing else than evolution become conscious of itself," explains Teilhard. Man's brain "proves that evolution has a direction." Teilhard apparently did not intend this as metaphor; he declared that his book was not to be read as metaphysics of religion, but "purely and simply as a scientific treatise."

The Catholic Church considered Teilhard's view most unorthodox, and did not allow him to publish this book during his lifetime. Creationists vigorously condemn Teilhard as the chief inspiration and patron saint of theistic evolutionism (and often

accuse him, as already noted, of foul play in both the Piltdown and Peking Man affairs). Many secular evolutionists denounce him with equal vigor for his mystical evolutionism-as-divineconsciousness (Medawar, for example, brands his work “philosophy-fiction” appealing to the half-educated, or to people “educated far beyond their capacity to undertake analytical thought”). Teilhard continues to have enormous appeal, though. Joseph Needham, the distinguished biochemist and embryologist who achieved even greater renown for his monumental study of the history of Chinese science, is president of the Teilhard Centre in England. Anthropologist Margaret Mead was a vice-president. In that organization’s *Teilhard Review and Journal of Creative Evolution* (1982) Needham decried the polarization between creation and evolution, and, quoting an ancient Chinese sage and citing Sir Andrew Huxley, irenically urged Teilhard’s views as reconciliation.

Despite the presence of a number of Catholics in the creationist movement, who freely promote Protestant creation-science arguments and other fundamentalist concerns, many Protestants remain implacably opposed to Catholicism. Among the most persistent and vociferous anti-Catholics are Jimmy Swaggart and Jack Chick, both of them also highly effective anti-evolution propagandists. Swaggart’s state of Louisiana is heavily Catholic as well as a strong Bible-belt center, and he has gotten into serious trouble for continuing to insist that all Catholics are going to Hell unless they be born again. Chick produces comic-book style tracts and booklets which have an enormous circulation. *Big Daddy?* (1972), one of his cartoon booklets, is perhaps the most widely-distributed piece of anti-evolutionist literature ever. Chick is savagely anti-Catholic, and, besides the fundamentalist denunciations of Catholicism in his cartoon booklets, he publishes books accusing the Vatican and the Pope of being agents of Satan and of masterminding all evil in the world. One of Chick’s comic books, for instance, *The Godfather* (1982), based on books by Alberto R. Rivera, describes the Vatican as having created and financed the Islamic religion, secret societies such as the Illuminati, and having masterminded for its own gain both World Wars—Nazism and communism alike being tools and creations of the Vatican, the “master of deceit” and “mother of harlots and abominations.”

RELIGIOUS DIVERSITY: JEWISH AND ISLAMIC

A number of orthodox Jews have joined Protestant fundamentalists in opposing evolution. Some 20% of Israeli students attend private religious schools, and the ultraorthodox often reject evolution. Though “scientific” creationism remains a fairly novel concept to orthodox Jews, and the Jewish creation-science arguments are mostly taken directly from Protestant sources, it has gained Jewish advocates. Even before the rise of modern creation-science some Jews voiced opposition to evolution using scientific arguments. Velikovsky, for instance, rejected natural selection and Darwinian evolution in his various books, and relied heavily on G.M. Price’s catastrophism. He attempted to provide quasi-naturalistic explanations for Old Testament events, thus taking them literally (though not quite supernaturally).²⁶ Philip Warsaw wrote a book *Genesis*,

²⁶ Interestingly, Velikovsky started a monograph series while living in Palestine in the 1930s. The first monograph was written by Chaim Weizmann, the Zionist leader, who was also a respected biochemist

Mother of Sciences (1953) under the pseudonym Pincas Dov, which Cavanaugh (1983) describes as a Jewish creationist work.

“Shamir,” based in Israel, is an organization for religious Jewish scientists and professionals from the Soviet Union and other communist nations. Dr. Yaacov Hanoka, a physicist with Mobil who lives near Boston, is the U.S. representative for Shamir. Shamir publishes a journal *B’or Ha’Torah* which has included several creationist articles, such as Hanoka’s “Torah, Science and Carbon 14” (n.d.), Lee Spetner’s “Information Theory Considerations of Organic Evolution” (n.d.), and “The Doctrine of Evolution” (author unknown, n.d.). Hanoka argues that science supports the assertion in the Torah that the earth is 5742 years old and that Adam and Eve were created fully formed (n.d.:33, 37). Moshe TROP, a chemist at Ben Gurion University of the Negev in Israel and former visiting professor at Rutgers, is active in Shamir. He has written a book in Hebrew called *Creation: Origin of Life* (1982), which he described to me in a letter (2/27/84) as showing the “scientific alternatives to evolution.” TROP has also published articles in the *Creation Research Society Quarterly* (despite the CRS doctrinal statement that it is “an organization of Christian men of science, who accept Jesus Christ as our Lord and Savior”), e.g. “Was Evolution Really Possible?” (1974).

In 1983 TROP published an item in *CRSQ* titled “Is the Archaeopteryx a Fake?” defending the claim of Lee Spetner that this celebrated transitional fossil is a hoax. Spetner, a professor at Bar Ilan University in Israel, studied the British Museum specimen, and reported that the fossils were “probably false and counterfeit” at a meeting of orthodox Jewish scientists in 1980. (This claim received wide publicity when Sir Fred Hoyle, the anti-evolutionist astronomer, championed it later.)

“Arachim,” an Israeli organization for the “furtherance of Jewish awareness,” published a book *Pathways to the Torah* which is very strongly creationist. The “Science and Torah—Evolution” section is a collage of hundreds of anti-evolution quotes (or quotes supposedly damaging to evolution) by creationists and by various scientists and others. The “Science vs. Scientism” section also denounces evolution. Other sections include “Archeology and the Torah,” and “Prophecy.” “The Codes of the Torah” describes sophisticated mathematical analysis which reveals hidden patterns and distributions of words and phrases in the text of the Torah, supposedly proving its divine origin.²⁷ A 1985 edition of *Pathways to the Torah* was prepared by the staff of Aish Ha’Torah under the direction of Rabbi Yehuda Silver. Aish Ha’Torah, located in Century City (Los Angeles), California, is the local affiliate of an Israeli Yeshiva. This edition adds some of the more recent anti-evolution quotes.

Jews for Jesus is a San Francisco-based organization headed by Moishe Rosen of “saved” Jews who have accepted Jesus as the Messiah, and generally support Protestant fundamentalist goals. Rosen is a member of the International Council on Biblical Inerrancy. Jews for Jesus express their support for creationism in their tract *Evolution*

(Israel’s Weizmann Institute of Science was named after him). An earlier monograph series by Jewish scholars, co-edited by Velikovsky, included a volume edited by Einstein (Juergens 1966:11-12).

²⁷ Daniel Michelson, a UCLA professor affiliated with Aish Ha’Torah, is one of the foremost practitioners of this type of analysis (Cziment; see also Cornell). The statistical results of his computer studies, and those of his Israeli colleagues, show millions-to-one odds against chance; they also contain predictions about Zionism, the Holocaust, and Armageddon (forecast for 1988).

(n.d. [1980:5]). Evolution says that we are getting better—but really we aren't, the tract points out. Evolution is really “devil-ution.”

Jay Sekulow is a lawyer who represented Jews for Jesus in their Supreme Court case regarding proselytizing in public places. Sekulow heads CASE (Christian Advocates Serving Evangelism), a San Francisco legal group which defends Christian religious rights. He also has a television program, “Call to Action,” on TBN, the Santa Ana, California Christian religious network, in which he advocates vigorous and militant legal activism to promote fundamentalist concerns, including the teaching of creationism in public schools.

One of the editors of the landmark booklet series *The Fundamentals*, Louis Meyer, was a “Christian Jew.” Meyer, who succeeded A.C. Dixon as editor, edited volumes VI-VIII, which included articles critical of evolution by Orr, Wright, Beach, and one anonymous author.

Creationist radio sermons by Wayne Carver have been published by the Christian Jew Foundation of San Antonio, Texas (*The Science of Creation*, n.d., and *Panorama of the Ages*, n.d.). “Creation is a Scientific Fact,” declares Carver. He denounces “evolutionary uniformitarians” described in II Peter: the “scoffers” in the Last Days who reject supernaturalism and refuse to believe that God destroyed the entire world in the Flood, and who believe that the earth is old, and formed by natural processes. Peter rebutted these evolutionist uniformitarians by speaking about the Creation and the Flood: the two events that “absolutely cannot be explained by the doctrine of uniformity” (*Panorama*, p.7). II Peter also foretells the coming destruction of the world by nuclear devastation.

Zola Levitt is a born-again “Hebrew Christian” author and televangelist who emphasizes the Jewish heritage of Christianity. He has written over forty Christian books on Bible prophecy, Israel, Pentecost, Jewish traditions, satanic UFOs, and other fundamentalist topics. Levitt’s book *Creation: A Scientist’s Choice* (1976), an extended interview with Protestant creation-scientist John N. Moore, the Michigan State science professor, is an exposition of creation-science. Levitt said he “secretly believed in evolution” until he met Moore, who converted him to strict creationism. “My belief in the biblical account of creation now rests on solid, objective grounds, and my rejection of evolution as a “theory” of origins is also unbiased and objective” (1976:5).

Jacob Rosin, retired director of Montrose Chemical Co. now living in Israel, wrote a strange book *The Predestined World* (1976) in which he exposes the contradictions and paradoxes of evolutionary theory. He goes on to propose his theory of “vitachemistry,” in which he explains that the genetic pool is one big “vitachemical” molecule. Viruses and amebas “commit suicide” in order to obey the biblical command to multiply (by dividing). Rosin employs some standard creationist arguments, such as claiming that the synchronized features of a bee colony must have appeared simultaneously—it couldn’t have evolved gradually or piecemeal. Regarding the alleged transformation of one species into another, Rosin asks: Why would one species commit “treason” to its purpose (continued survival)? Rosin describes evolution as unavoidable in his chapter “The Programmed World”: it is a progressive chemical process which is identical throughout the universe. It does not have a single goal, however, as in the notion of orthogenesis; it is a programmed process. Dinosaurs, for instance, may be in existence now on other planets, propelled by this identical vitachemistry process. And

eventually, we humans will evolve into *Homo sempervirens*. *H. sempervirens*, says Rosin, may also already exist on other planets. Rosin first proposed *H. sempervirens* in a previous work, *In God's Image*, which I haven't seen.

Meir Ben Uri is a prominent Israeli religious artist and architect whose hobby is reconstruction of Old Testament objects strictly according to biblical descriptions. Insisting that every letter in the Bible is correct, Ben Uri, an orthodox Jew, constructed a rhomboidal ark of bamboo and pitch, which he displayed in 1968. His careful ark reconstruction is cited admiringly by creationists such as Noorbergen (1974:76-78), who quotes a Feb. 1968 *Christianity Today* article describing Ben Uri's work ("Making Noah's Ark Credible"), Oviatt (1980:93-94), and R.L. Harris (1971:87).

Even non-fundamentalist Jews may be sympathetic to anti-evolutionist feeling. A recent issue of *Tikkun*, a liberal Jewish journal, featured a special section on "Creationism vs. Evolution: Radical Perspectives on the Confrontation of Spirit and Science" with several articles critical of establishment evolutionist science. (The same issue contained an article by the late USC anthropologist Barbara Myerhoff.) In one article, "Creationism and the Spirit of Nature," Peter Gabel, president of New College in California, says that science, because it is reductionist, is therefore incapable of identifying the holistic, spiritual essence of organisms. Evolution, he complains, cannot explain this essence, or the deep questions of reality and existence. The transformations of life-forms which evolution seeks to explain cannot possibly be explained "entirely or even primarily by chance genetic mutations" (1987:60). Science is now considered a "privileged source of truth" and is becoming our new established religion. Gabel urges instead an "intuitive" approach in order to identify with the inner nature and feelings of other organisms. As an example, he reinterprets Gould's "panda's thumb" case, suggesting that pandas "willed" this transformation and "identified" out of love with the new panda concept (he applauds Teilhard), eventually passing on the change "empathetically" to the embryo (1987:61).

In another article, on legal aspects of creationism, two SUNY-Buffalo law professors explain the complications and inherent paradoxes of trying to safeguard both the establishment clause and the free exercise clause of the First Amendment with reference to creation/evolution cases. They note that science cannot be truly objective; that all science is rooted in social, cultural and political context. Popper, in the end, was wrong, and Kuhn was right. They find it paradoxical that S.J Gould properly emphasizes this paradigmatic nature of science and its context, rejecting simplistic dichotomies and praising many early creationists for being just as scientific as their opponents, yet he condemns modern creation-science as a sham and campaigns for its defeat, claiming that science conclusively shows evolution to be an established fact. It is modern fundamentalism's heavy-handed, mechanical "facticity," they argue, which makes it dogmatic and oppressive, and they warn of a similar danger in the new "elite priesthood" of evolutionist scientists (Freeman and Mensch 1987).

Islam, like Christianity and Judaism, is a religion of the Book, and is likewise susceptible to literalist and fundamentalist interpretations. As with Jewish creationism, Islamic creationism, at least until the rise of the modern creation-science movement, has been openly religious rather than "scientific." Like traditional Jewish creationism, and unlike much Protestant anti-evolutionism, which claims that creationism and other biblical truths can be empirically proven by external (non-biblical) evidence in addition

to “internal” evidence, Islamic creationism has traditionally emphasized internal evidences: proofs derived from the text of the Qur’an itself.

In particular, various numerological studies and schemes have been proposed as proof of the supernatural origin of the Qur’an. Like similar exercises directed at the Torah and the Christian Bible, these are usually versions of “gematria”: “the ancient system of assigning numbers to each letter of the Hebrew alphabet, then adding up biblical words and phrases to obtain curious mathematical correlations”²⁸ (Gardner 1983:355). (The computerized mathematical analysis of Michelson and Aish Ha’Torah’s *Pathways to the Torah* is somewhat different, though the style and intent is very much the same. It consists of searches for “clusterings”: statistically unusual distributions of particular words found at certain distances in the text from selected subject words.)

Rashid Khalifa, a Moslem creationist, has developed a numerological system for the Qur’an which is quite similar to the Jewish and Christian schemes based on gematria. Khalifa, who was born in Egypt and has a biochemistry Ph.D. from UC Riverside, heads the pesticide residue section of the Arizona chemist’s office. He also heads Masjid (Mosque) Tucson, and is editor of its newsletter *Muslim Perspective*. Khalifa made his own translation of the Qur’an, which he insists is absolutely inerrant: each individual letter is true and unalterable (important because of the numerical values assigned to letters). All other translations are false and heretical, he claims (Khalifa 1987). Using his perfect translation, Khalifa discovered amazing mathematical relationships, which he has pursued with computer analysis. There is a secret code in the Qur’an based on the number 19. For instance, the verse with which each sura (chapter) opens contains 19 letters; each word in the verse occurs in the entire Qur’an in some multiple of 19. Khalifa first announced his discovery of this code in a privately published booklet called *Number 19: A Numerical Miracle in the Koran* (1972; cited in Gardner 1980:22). He has since developed this in books such as *Qur’an: The Final Scripture*, *The Computer Speaks: God’s Message to World*, and others. Khalifa declares that this secret, miraculous numerical code is “physical, verifiable and indisputable proof” that the Qur’an is “God’s final message to the world.” “Remember, there is no interpretation, opinion, or guess. These are absolutely physical facts” (*Let the World Know*).

The mathematical relationship of all these letters proves that the Koran cannot be human-made. This is the first physical evidence for God, and it may take several generations to be appreciated. This marks a new era in religion. You don’t need to have faith anymore. [Quoted in J. Smith 1983]

In 1982 Khalifa’s Islamic Productions published his book *Creation: Why We Must Teach It in the Schools*. In 1984 Khalifa filed a \$38 million lawsuit against the National Academy of Sciences for their (1984) booklet *Science and Creationism*, which the NAS sent to every public high school in the country. Khalifa accused NAS of spreading “deliberately distorted information” and of suppressing academic freedom (news release flyer from Khalifa’s Renaissance Institute, n.d). He alleged that the NAS

²⁸ Jerry Lucas, former All-American basketball player, teamed up with fundamentalist author Del Washburn to write *Theomatics: God’s Best Kept Secret Revealed* (1977), which uses gematria to show that there is intricate mathematical design in the Bible. “Theomatics scientifically proves that God wrote the Bible.” The authors claim that God is revealing, via theomatics, this truth during these End Times in order to refute the prevalent view which denies that “God created all things by direct and personal action” and the assumption that the world is governed by impersonal laws of nature.

damaged his business, which involves selling creationist books and materials concerning the origin of life “based on verifiable scientific facts” (*Renaissance Inst. vs. Nat’l Acad. Sci.* 1984:6).

Though some religions adhere to a special theory of creation, Plaintiff, through scientific inquiry, has independently postulated the various theories of creation in scientific terms, as opposed to religious or philosophical beliefs... Plaintiff proposes to introduce at trial its proof that the theory of Creation as the explanation for the origin of life on Earth is scientifically verifiable. [*Renaissance Inst. vs. Nat’l Acad. Sci.*: 1984:3]

In 1986 Khalifa made a video *Creation or Evolution: The Final Argument*, which is explicitly aimed at the Supreme Court with regard to the Louisiana creation-science case. In it he presents standard creation-science arguments against evolution, especially the probability arguments. He proclaims that mathematics, the most rigorous science, decisively proves evolution false. “A fact is a fact is a fact.” Evolution is the “worst mistake in the history of science,” and it is a “crime of historical proportions” that we continue to teach it in our schools when we have proof that it is wrong. In the second half of his video “*Mathematics Proves Creation*,” Khalifa presents his Qur’anic numerology as a “coded message from the super-intelligent Creator”: physical, verifiable evidence constituting “irrefutable proof” of Creation. He scoffs at creationists such as Duane Gish who say that creationism isn’t falsifiable or scientific in the strict sense, asserting that his mathematical code is positive and absolute proof. He also mentions that a Jewish rabbi first discovered the significance of the number 19 in the Torah some 900 years ago (Khalifa considers Jewish and Christian Scripture God’s Word, but the Qur’an is His “final” Word, and is the only perfect and inerrant Scripture).

Maurice Bucaille, a French surgeon who learned Arabic and studied Islam intensively, takes more of a “Bible-science” approach than most traditional Islamic creationists, appealing to external scientific evidences, like Protestant creation-scientists. Bucaille’s *The Bible, the Qur’an, and Science*, which was originally published in French and has gone through ten editions, is very popular in France and in many Islamic countries. The Bible is a divine revelation from God, says Bucaille (like Khalifa), but it has been translated and recorded by fallible humans, and contains errors. The Qur’an is a later, perfect revelation: God’s words to Mohammed were written down directly. “In contrast to the Bible,” the Qur’anic text is “none other than the transcript of the Revelation itself; the only way it can be received and interpreted is literally” (1982:161). The Qur’an—unlike the Bible—is absolutely accurate scientifically: accurate far beyond Mohammed’s mere human ability. Thus, Bucaille’s “Bible-science” approach is identical to Protestant creation-scientists—except that he applies it to the Qur’an, and dismisses the Christian Bible as flawed and filled with error.

Bucaille presents a detailed case for the validity of “higher criticism” of the Bible, explaining how research has demonstrated that the various parts of the Bible were written by different authors at different periods. That there are separate—conflicting—Yahvist and Sacerdotal sources for Genesis is unarguable, he states. But it is another story entirely for the Qur’an. Bucaille says that when the Qur’an was written, science had not progressed since Jesus’s time—yet the Qur’an (quite unlike the Bible) contains no scientific inaccuracies. Arabic science prior to the Qur’an Revelation was not advanced, but Islamic science flourished precisely because of the Qur’an [1979:121]. Using his

own translation, Bucaille presents examples demonstrating how modern science is confirming various Qur'anic passages.

What initially strikes the reader confronted for the first time with a text of this kind is the sheer abundance of subjects discussed: the Creation, astronomy, the explanation of certain matters concerning the earth, the animal and vegetable kingdoms, human reproduction. Whereas monumental errors are to be found in the Bible, I could not find a single error in the Qur'an. I had to stop and ask myself: if a man was the author of the Qur'an, how could he have written facts in the seventh century A.D. that today are shown to be in keeping with modern scientific knowledge? [1979:120]

There is, he says, "absolutely no opposition between the data in the Qur'an on Creation" and modern knowledge of cosmogony. The Creation account in Genesis, on the other hand, is a "masterpiece of inaccuracy from a scientific point of view" (1979:22). The six 'days' of creation described in the Qur'an are long periods, according to Bucaille, who asserts that the Qur'anic creation account is "quite different" from the Genesis account. The Bible is simply wrong in its claim that man was created recently.

In a second book, *What Is the Origin of Man?: The Answers of Science and the Holy Scriptures*, Bucaille relies heavily on the arguments of anti-Darwinian French zoologist Pierre-Paul Grasse, quoting him extensively. Bucaille argues that Darwin was motivated largely by sociological factors, and that materialist evolution flourishes because of ideological—not scientific—reasons. Bucaille credits Darwin with some insight, but says that his evolutionist followers have extrapolated recklessly from Darwin's theory, far beyond what he himself claimed. Darwin never claimed that man descended from apes, says Bucaille, though evolutionists now assert this in order to deny God and to promote materialism (1982:9, 170). Man was created similar to the apes, but separately (1982:199). Scientists "do not possess one iota of evidence" that they are related (1982:200), though Bucaille concedes that there has been some evolution within the hominid lineage (1982:211-212).

Animals have evolved, but prior intelligent programming was necessary. Chance mutations are entirely incapable of accounting for evolution: "mutations would have had to occur in a chronologically perfect order at exactly the right moment in time," which clearly they are incapable of doing (1982:67). Evolution, says Bucaille, is "quite obviously oriented": i.e., a directed phenomenon (1982:50) (he cites Teilhard approvingly.) He strongly denounces Jacques Monod's "chance and necessity" view of evolution (e.g. 1982:52-56). Bucaille notes that many Europeans remain skeptical of Darwinism, but that it is accepted quite uncritically in America (1982:44). He then discusses various "scientific" passages in the Qur'an, especially those dealing with human reproduction and embryology, explaining how these demonstrate the Qur'an's scientific infallibility.

Mohammed Ayub Khan Saidookhail presents a less sophisticated argument in his booklet *The Missing Link: an Antithesis* (1971). "Since long," he writes, "my mind has been agitating to write something relating to 'The Missing Link of Man' because I could not relish the idea that my ancestors were apes." "The man [sic] got on earth by creation and not by evolution. The monkey or baboon never evolved into a man, but man was made as such from the very beginning" (1971:1, 50). Saidookhail, who is presumably Moslem, quotes from both Genesis and the Qur'an. A privately published booklet by Farid Abu Rameh, *Creation or Evolution: Does Science Have the Answer?* (1981?), based on a lecture given in England, presents the standard creation-science arguments,

relying heavily on ICR material. Rahmeh, who got a civil engineering degree from the American University in Beirut and was at the time enrolled in a Ph.D. program in England, does not disclose whether he is Christian or Moslem.

John Morris, leader of ICR expeditions looking for Noah's Ark on Mt. Ararat, told me that creation-science materials are being distributed in Turkish public schools. (Turkey is now a secular republic, though almost all Turks are Islamic believers.) There is a small group of creationist scientists at Atatürk University in Erzurum in eastern Turkey. One of them, an ecologist, wrote me that he supported creationism in order to oppose atheism, materialism and communism, which destroy morality. Belief in the Creator and in life after death is more important, he added, than any differences of religion.

CREATIONISM INTERNATIONALLY

Just as the creation-science movement, though a product of Protestant fundamentalism, has recently attracted imitators and converts in other religions, so too it has begun to spread outside of the United States, though it is very much a product of its American cultural conditions. There has been some support for creationism in other nations with strong Protestant (and "fundamentalist" in the broad sense) traditions—Britain and other English-speaking nations, The Netherlands, Germany, Scandinavia—but most of the current public support for "scientific creationism" in these nations has been directly inspired by the rise and popularity of the modern creation-science movement in the U.S. There are now creationist organizations in many other nations as well, but these, even more so, are reflections or satellites of the American (sometimes British) creationist groups.

In Britain, for example, membership in the Evolution Protest Movement quadrupled during the 1960s, according to Barker (1979:187), who says that the formation of the Creation Research Society "provided an undoubted boost to the creation science movement in Britain." A further indication of influence of the success of the American creation-science movement is that the EPM changed its name in 1980 to the Creation Science Movement. Britain, as we have seen, played a very active role in shaping many of the doctrines which eventually combined to give rise to 20th-century fundamentalism. Religious opposition to evolution came to a head more quickly in England than it did in America, and religious authorities were largely reconciled to evolution before the turn of the century. Despite doctrinal roots which were British as well as American, there was no militant fundamentalist movement in Britain comparable to the U.S. fundamentalism of the 1920s. British anti-evolution groups such as EPM (founded in 1932) predate the successful American organizations of today, but they did not enjoy widespread public support—though they did produce a lot of literature and did much to help develop the creationist arguments still in use.

Sir John Ambrose Fleming, who became the first president of the EPM after its founding in 1932, had previously been president of an earlier anti-evolution organization, the Victoria Institute, or Philosophical Society of Great Britain, which was founded in 1865; Douglas Dewar, also an EPM president, had been a Victoria Institute vice-president. According to its constitution, the Victoria Institute has but one object: "to advance the Christian religion as revealed in Holy Scripture." The Victoria Institute

published anti-evolution books by Fleming, Dewar and others. *Faith and Thought: The Journal of the Victoria Institute*, which was “devoted to the study of the interrelation of the Christian Revelation and modern research,” also published creationist works. Two papers by G.M. Price were published in the *Transactions of the Victoria Institute*, one winning the Victoria Institute’s award for 1925 (Morris 1984b:206). Much of George Warington’s book *The Week of Creation, or The Cosmogony of Genesis Considered in Its Relation to Modern Science* (1870), for instance, originally appeared in that journal. Samuel Zwemer’s *The Origin of Religion* (1945) is based on a 1935 article which appeared in the *Transactions*. Zwemer, a Presbyterian and Princeton Theological Seminary professor, argued that the most primitive religions are monotheistic and acknowledge the true God, as well as Creation and the Fall.²⁹ He refuted evolutionist theories of the development of primitive religion, particularly the schemes of Tylor, Max Muller, Frazer, Lubbock, Spencer, Durkheim and other anthropologists.

The Victoria Institute was not exclusively an antievolutionist group, however, and the founding of the EPM probably reflected a desire for a more direct and concentrated attack on evolution. The Evolution Protest Movement did not have a specific doctrinal basis—its members are not bound by any rigid Statement of Belief—and it has therefore attracted a wide variety of creationists. “Because EPM has been largely an anti-Evolution movement rather than a pro-Creationist movement it has never had clearly defined views on Creation, particularly on the age of the earth” (Munday 1986:42). Following upon the success of modern American creation science, emphasis within the EPM began to shift more to strict creationism. In 1980 it changed its name from the Evolution Protest Movement to the Creation Science Movement. The 1981 pamphlet *Particulars of the Creation Science Movement* lists 227 pamphlets published by EPM/CSM, and several books.

As with American creationist groups, different British organizations, with differing approaches, have arisen to fill different niches in the anti-evolutionist scene. The Newton Scientific Association, based in London, was founded in 1972 by a minister and a few scientists (Barker 1979:187). As the name implies, it emphasizes “scientific” rather than biblical creationism, though it advertised in religious magazines. And unlike the CSM, full members (many of whom are scientists) must affirm an evangelical statement of faith.

The Newton Scientific Association is particularly concerned not to resort to Biblical reference at all in its work but to stick solely to secular references. The members are well aware that they could easily be accused of being ‘religious’ and they are insistent that it is not a religious crusade that they are conducting. Their interest is in good science and this they believe is non-evolutionary... The important thing is to understand the difference between scientific facts which the Creationist will not only not be afraid of, but will delight in accepting, and scientific theory which is man-made and subject to the vagaries of man’s limited understanding. [Barker 1979:189]

Members of the NSA are likely to be embarrassed by what they consider the Bible-thumping approach of the EPM which is seen as doing more harm than good to the cause. EPM members on the other hand are

²⁹ Zwemer writes (1945:204-205): “Our conclusion, then, is that we need no longer cross a ‘Rainbow Bridge’ to find a cave-man who by evolutionary processes became a *homo sapiens*; but that on the threshold of human history and in the earliest cultures he greets us made in the image of God, conscious of his Creator, aware of moral impulses... One cannot read the mass of evidence in recent books on ethnology without finding again and again corroboration of the truth of Revelation: ‘God created man in his own image...’”

dubious about the apparently secular attitudes of the NSA, and the way members of the latter appear to leave the Scriptures out of their calculations as, for them, the whole point of the exercise is to show that God's word is true, and that therefore we should believe and live by the Bible. [Barker 1979:193]

According to Michael Howgate, who then constituted half of the Association for Protection of Evolution (APE), a group which opposes and debates British creationists, the Newton Scientific Association "disappeared underground" a few years ago after forcibly removing an APE member from its meeting (2/22/85 letter to me).

The Biblical Creation Society, founded in 1976 and based in Glasgow, Scotland, is, as its name implies, overtly religious in its creationism. BCS publishes the journal *Biblical Creation*, plus pamphlets, monographs and other materials. Members range from strict young-earth creationists to old-earthers. The Biblical Creation Society is, according to Howgate, much more sophisticated and academic than CSM. E.H. Andrews, president of BCS, has criticized American "scientific creationism" for avoiding overt references to God, Christ and the Bible. The Creation Science Movement, on the other hand, complains that BCS is not sufficiently committed to strict young-earth creationism (Howgate and Lewis 1984:703). Despite this philosophical difference, there is some overlap in membership. Verna Wright, professor of rheumatology at the University of Leeds, is vice-president of BCS and president of CSM.

A.J. Monty White, a chemist and administrator at the University of Wales Institute of Science and Technology, has been putting out his own newsletter (*Creation News Sheet*) in Wales. White, also a leader of the Newton Scientific Association, insists upon strict young-earth creationism in his book *How Old Is the Earth?* (1985). There are local creationist groups in Somerset and Devon, England as well. The Counter-Evolution Group, which publishes a journal *Daylight*, is a Catholic group in Scotland.

Not surprisingly, creationism in Canada is an amalgam of both American and British influences. The North American Creation Movement, founded in 1970, is "loosely affiliated" with the Evolution Protest Movement. Besides distributing EPM/CSM material, it publishes its own *Newsletter*, edited by W.D. Burrowes. The Creation Science Association of Canada was founded in 1967 as the Bible-Science Association of Canada. It is the Canadian headquarters of the Bible-Science Association, and has regional affiliates of its own. One of them, the Creation Science Association of Alberta, publishes a journal *Dialogue* which the Committee for True Education offers to send to schools for one dollar per year. Abe Enns, who wrote the book *Evolution: Science or Speculation?* (1979) heads the Creation Science Association of Manitoba, and is on the Council of the North American Creation Movement. The Creation Science Association of Ontario also publishes a newsletter and put out the popular tract *Overwhelming Evidence for a Young Earth* (n.d.). There is also a Creation Science Association of Saskatchewan.

International Christian Crusade, in Toronto, has published many very successful tracts and booklets, most of them written by John Howitt (1964, 1976, 1981). Televangelist David Mainse's Crossroads Christian Communications, also in Toronto, broadcasts his popular daily television show "100 Huntley Street." The "Crossroads Creation Series" (1980) is a series of twelve shows, available as videos (also distributed by ICR), hosted by Mainse. The major theme of the series is that evolution is a "belief system" rather than a scientific theory; a belief system accepted uncritically and dogmatically, built upon "hoax, conjecture and even false reasoning," which has sinister

consequences. Duane Gish, Harold Slusher, Gary Parker, Wilbert Rusch, John N. Moore (all of ICR and/or CRS), and Malcolm Muggeridge, the distinguished British author and Christian apologist, are among those featured as advocates of creationism. (Muggeridge repeats his prediction, included in his book *The End of Christendom* (1980), that evolution will one day be universally recognized as a joke: “Posterity will marvel that so very flimsy and dubious an hypothesis could be accepted with the credulity that it has. I think...this age is one of the most credulous in history...”).

Creationism is also strong in Australia and other British-settled nations. The Creation Science Foundation in Queensland publishes *Creation Ex Nihilo* (formerly called *Ex Nihilo*), a glossy magazine filled with photos, colorful graphics, cartoons, and games which presents strict creationism to popular audiences. Most of the creationist arguments and material are taken directly from or are identical with the creationism of ICR and other major U.S. groups. The Creation Science Foundation has often featured speakers and programs from ICR. *Ex Nihilo* was formerly distributed in the U.S. by Moody Monthly; later, it was distributed through ICR’s Master Books. These U.S. affiliates publish a newsletter *Creation-science Prayer News*. Creation Science International (foreign headquarters of CSF) is in Tucson, Ariz. Besides their popular magazine, CSF publishes an *Ex Nihilo Technical Journal*. They also put out magazine-format special supplemental issues, the “Casebook” series, which are widely distributed by creationist groups: e.g. *The Relevance of Creation* (Ham 1983) and *The Case Against Evolution* (Snelling et al. 1984). The Joseph Shelley Institute, a part of CSF, offers a creation science correspondence course, also available in the U.S. through Creation Science International.

Ken Ham, one of the leaders of CSF, spent much time proselytizing in the U.S., for instance as featured lecturer, along with Henry Morris and Gary Parker of ICR, at the “Creation Festival,” a 1986 multi-media traveling show sponsored by Films for Christ.³⁰ Ham later decided to stay in this country full-time, and joined the ICR staff, where he vigorously preaches “creation evangelism.” Genesis is “foundational” to all the rest of Christianity, Ham teaches. Unless we begin with a literal interpretation of Genesis, the rest of the Bible makes no sense. Substitution of evolution for the creationism clearly presented in the Bible results in the collapse of morality and of Christianity. Creationism is thus the very highest priority for Christians, and Ham urges “creation evangelism” in order to restore these biblical foundations. Ham has presented this message in book form in *The Lie: Evolution* (1987). “If God did not mean what He said in Genesis, then how could one trust Him in the rest of the Scriptures?” (1987:xiii). People have simply been “deceived” into believing that evolution is science. Ham declares that anything that disagrees with the Bible must be wrong, no matter what the evidence indicates, since the Bible is God’s infallible word (1987:32). “Evolution is an anti-God religion held by many people today as justification for their continued pursuit of self-gratification and their rejection of God as Creator” (1987:66). Ham attributes the evils of drugs, abortion, homosexuality, lawlessness, racism, Nazism, etc. ad infinitum, to evolution. “An all-out attack on evolutionist thinking is possibly the only real hope our nations have of rescuing themselves from an inevitable social and moral catastrophe” (1987:67).

³⁰ I attended this “Creation Festival” at its Los Angeles-area appearance in February 1986 at Grace Community Church in the San Fernando Valley (McIver 1986d), a super-church pastored by influential fundamentalist writer John MacArthur.

There are also other Australian creationist groups including branches of the Evolution Protest Movement and local groups.

For a number of reasons, The Netherlands has been more receptive to creationism than other continental European nations. Though much of Dutch society is highly secular and cosmopolitan, the Dutch Reformed Church, conservative and strongly Calvinist, remains an important influence. Religious as well as state-run schools are supported by public taxes; consequently, there is much autonomy and freedom of choice as far as curriculum, and creationism is espoused in many religious schools. Ouweneel (1985) explained that creationism has an easier time in some ways in the Netherlands: creationists can found their own Christian schools and write their own creationist curriculum, and it is all subsidized by the state.

In 1974, businessman Frederick Kerkhof founded the Foundation for the Advancement of Studies Faithful to the Bible (Stichting tot Bevordering van Bijbelgetrouwe Wetenschap). Willem J. Ouweneel, the most prominent Dutch creationist, was a geneticist and embryologist at the Royal Dutch Academy of Sciences until 1976. In 1975 he became editor of *Bijbel en Wetenschap*, the journal of Kerkhof's organization. Ouweneel was a co-founder, in 1977, of Evangelical College in Amersfoort, where he teaches philosophy and psychology. Evangelical College teaches a strictly biblical approach in all subjects, including natural and social sciences and the humanities, and was created "on the initiative" of Kerkhof's creationist Foundation in order to counter the liberalism, atheism and evolutionist prevalent at other Dutch universities (Ouweneel 1978:2). Ouweneel's creationist writings began in 1974 with two booklets *What Is the Truth: Creation or Evolution?* and *Notes on Genesis One*, the first of which a hundred thousand copies were printed, and both of which are available in several languages. *Operation Superman* (1975), is, according to Ouweneel, his "major book"; he says it quickly sold out and that "one of the best known theologians in Holland said that it broke the power and monopoly of the evolution doctrine in this country" (1978:2). Other books by Ouweneel include *The Ark in Agitation* (1976), on Flood Geology, and *Youth in a Dying Age* (1977), on the "philosophical and moral consequences of the evolution doctrine." Ouweneel has spoken at Bible-Science conferences in the U.S. As of a few years ago, he was pursuing a second doctorate in philosophical anthropology.

Ouweneel is most widely known in America as one of the featured scientists on the Films for Christ *Origins* film series, in which, as a geneticist, he explains that mutations are always damaging, and cannot result in improvement, as demanded by evolution. The six-part *Origins* series was in fact a joint Dutch-American effort. It was co-produced by the Dutch Evangelical Broadcasting Company (Evangelische Omroep), and is based on their Dutch television series. Willem Glashouwer, a researcher for the *Origins* films (and, along with Ouweneel, a scriptwriter), co-authored a book with Ouweneel, *Het Onstaan van der Wereld* (1980; "The Beginning of the World"), published by Evangelische Omroep. The lavishly illustrated book by Josh McDowell and Don Stewart of Campus Crusade for Christ, *The Creation* (1984), is "adapted from" Glashouwer and Ouweneel's book.³¹

³¹ The McDowell and Stewart book is part of Campus Crusade for Christ's Family Handbook of Christian Knowledge series. McDowell, a leader of Campus Crusade and series editor, is listed as first author, but Stewart is described as "author." The book contains much material from the *Origins* film series. It is

Creationism in South Africa is influenced by both its British colonial ties and by its Dutch heritage. The white Dutch Reformed Church has some 1.5 million members, including a majority of the Afrikaaner population and almost all of South Africa's government officials. Many Dutch Reformed members are strongly conservative and fundamentalist. *Deus Dixit* is a magazine published by a creationist group in Pretoria. There is also a Creation-Science Association in South Africa. Many American fundamentalists openly support South Africa on the grounds that its government is built upon a strongly conservative religious base. Some creationists say that the United States and South Africa are the only two nations in the world which have retained a biblically-based (i.e. fundamentalist) society. They see the widespread criticism of South Africa as liberal, atheist attacks against a courageous, God-fearing people, and dismiss concern about apartheid as an excuse to destroy the religious base of society. Many South African fundamentalists continue to insist that apartheid and racial discrimination are biblically justified, though this is no longer the official position of the Dutch Reformed Church of South Africa.

There are a number of active creation-scientists in Germany, and several creationist organizations, but the movement apparently has not achieved widespread public support. The officially recognized churches are state supported. The great majority of Germans who declare church membership (and most do) belong to either Lutheran or Catholic churches, which receive a portion of members' taxes. Most Germans attend public high schools, where they receive religious instruction, but there have been few cases of creationist teaching in these state schools. Schirmacher (1985:3) complains that most German fundamentalist churches do not stress creationism. Both Schirmacher and Myers (1980:21) attribute the low level of public support for creation-science in Germany as compared the U.S. to the lack of support provided by fundamentalist churches and the absence of prominent national creationist organizations. (In Germany, "evangelische" refers to Protestantism generally; "pietists" and "evangelikals" are conservative Protestants, but do not necessarily share all the concerns of American fundamentalists, such as creationism.)

Several German scientists and theologians stoutly opposed evolution as anti-Christian in the early part of the century, such as F. Bettex (as discussed previously). Albert Fleischmann, a professor of comparative anatomy at Erlangen University, wrote in *Die Descendenztheorie* (1933 [1901]) that the theory of evolution

suffers from grave defects which are becoming more and more apparent as time advances. It can no longer square with practical scientific knowledge, nor does it suffice for our theoretical grasp of the facts. The Darwinian theory of descent has not a single fact to confirm it in the realm of nature. It is not the result of scientific research, but purely the product of imagination. [Quoted in D. Zimmerman 1976:203-4]

Fleischmann also contributed articles such as "The Doctrine of Organic Evolution in the Light of Modern Research" to the *Transactions of the Victoria Institute*. Earlier (1883),

apparently modeled on the popular Time-Life science books, considered by fundamentalists as evolutionist propaganda of the worst sort. The format is the same. McDowell and Stewart stress the need for defense of Christianity by reason and evidence. Campus Crusade for Christ International, founded by Bill Bright and now based in San Bernardino, California, was headquartered across the street from UCLA in Bel-Air in the 1950s. Nine of the eleven starters on the number-one-ranked UCLA football team of 1954 publicly presented testimony for Campus Crusade for Christ (Bright 1970:30-34, 130).

another scientist at the University of Erlangen, Friedrich Pfaff, co-authored a book *The Age and Origin of Man Geologically Considered*, which was published by Bible societies in both England and America. Eberhard Dennert wrote *At the Deathbed of Darwinism* (1904; English edition by the German Literary Board in Iowa), *Bibel und Naturwissenschaft* (1904), and *Moses oder Darwin?* (1907). Ernst Lohmann, author of various religious books, wrote *Descent from the Monkey* to refute evolution (cited in Graebner 1925:33).

According to Schirmacher, A.E. Wilder-Smith started the German creationist movement, though *Bible und Gemeinde*, the journal of the “Bibelbund,” had been publishing antievolutionist articles for years when Wilder-Smith became its scientific correspondent in 1966. Wilder-Smith is the most famous “German” creationist and probably the most prominent creationist in continental Europe: he is British, but now speaks and writes in German, and has lived in Switzerland for many years. Wilder-Smith has a Ph.D. in organic chemistry from the University of Reading (England), plus two Swiss doctorates in pharmacology from E.T.H. Zurich and the University of Geneva. He has taught in American medical schools and in Turkey, where he lectured U.S. servicemen on drug abuse as a NATO advisor. Wilder-Smith began lecturing in Germany to the new “evangelikal” movement after the war; later (following the publication of *The Genesis Flood* by Henry Morris), John Whitcomb and Willem Ouweneel helped spread the creationist message in Germany. Wilder-Smith’s first book, *Herkunft und Zukunft des Menschen*, was published in 1966. It was later translated into English and published in the U.S. as *Man’s Origin, Man’s Destiny: A Critical Survey of the Principles of Evolution and Christianity*.

Wilder-Smith’s other books (all of them originally published in German, and now published by ICR’s Master Books) include *The Creation of Life: A Cybernetic Approach to Evolution* (1970), *A Basis for a New Biology* (1976), *The Natural Sciences Know Nothing of Evolution* (1981), *He Who Thinks Has to Believe* (1981), and *The Reliability of the Bible* (1983). Wilder-Smith insists that science proves evolution totally impossible, and insists on strict, recent creationism. His primary argument is that random, chance processes cannot create life. Life has *Design*, and this Design must have been planned by supernatural Intelligence. Wilder-Smith declares flatly that evolution violates the laws of thermodynamics, and endorses the Paluxy manprints, the pre-Flood Water Canopy, and other tenets of strict creationism.

In 1978, Horst Beck, a fundamentalist theologian and engineer at the University of Basel, founded “Wort und Wissen” (Word and Knowledge”), the first German creation-science organization, after becoming dissatisfied with the Karl Heim Society, a group of evangelical scientists who were too tolerant of theistic evolution. Beck called for a re-unification of faith and knowledge, especially scientific knowledge. Wort und Wissen sponsors a creation-science series published by Hänssler-Verlag, an evangelical publisher; the series is also called “Wort und Wissen.” It also sponsors a popular creationist series, and a monograph series (“Fachberichte Wort und Wissen”), also published by Hänssler. The first volume in the Wort und Wissen series was Beck’s *Biologie und Weltanschauung: Gott der Schöpfer und Vollender, und die Evolutionskonzepte des Menschen* (1979). Beck also wrote another volume for the series, *Die Debatte um Bibel und Wissenschaft in Amerika* (1980).

In 1979 Beck's *Wort und Wissen* also began *Factum*, a German-language journal published in Switzerland by Bruno Schwengeler which focuses on creation-science but also includes other Bible-science issues. Besides Beck and other Germans, the board of advisors includes Morris, Whitcomb, and the late Francis Schaeffer. *Factum* publishes many of "Dr.Dr.Dr." Wilder-Smith's articles. Werner Gitt, director of the Physical-Technical Federal Institute of Braunschweig, Germany, was perhaps the most prominent scientist to join Beck's *Wort und Wissen*. Gitt later wrote an article for ICR's *Impact* series, "The Flight of Migratory Birds" (1986). Siegfried Scherer, a biochemist at the University of Konstanz who has published in the *J. of Molecular Evolution*, wrote the first volume in the *Wort und Wissen* monograph series (Scherer 1983). Joachim Scheven wrote a book *Data Pertaining to the Teaching of Evolution in Biology Instruction* for the *Wort und Wissen* series, which was described by Ellen Myers as a "thorough-going refutation of evolutionism from the basis of actual facts of geology" in a 1980 issue of *CSSHQ*. Scheven has a fossil collection—a "creation-science museum"—in Ennepetal.

Eduard Ostermann, in *Das Glaubensbekenntnis der Evolution* (1978), says that "evolution theory is a religion without God, a religion without Christ, and therefore the religion of the Antichrist." Ostermann also wrote *Unsere Erde—Ein Junger Planet* (1978; "Our Earth—a Young Planet").

The first European Creationist Congress, held in Belgium in 1984, gives a good indication of recent European interest in creationism. The book *Concepts in Creationism* (1986) consists of lectures from this conference. It is edited by E.H. Andrews (British), Gitt (German), and Ouweneel (Dutch); the Foreword is by Walter Lang (America, BSA). Most or all of the contributors are strict creationists, and there are papers on both "biblical" and "scientific" creationism. The emphasis is on the unity of all knowledge: of science and religion both speaking of the same Truth. The other contributors are also either British, German or Dutch, plus an American teaching in Germany, but there were also attendees from Australia, France, Sweden, Switzerland, and Chile (Andrews et al. 1986:9). The meeting was sponsored by *Wort und Wissen* and by Kerkhof's Dutch Bible-science organization (Bertsch 1984:33).

There are creationist organizations in a number of other countries as well. I have collected information on three creationist groups in Sweden, three in India, two in Japan, and groups in Norway, Spain, Greece, Mexico, Guatemala, Dominican Republic, Brazil, Korea, Taiwan, Singapore, Sri Lanka, Kenya, and New Zealand, plus the Israeli and Turkish groups discussed earlier. An article in ICR's *Impact* series describes "Creation Science in Korea" (Kim 1986); the author is a professor of the Korea Advanced Institute of Science and Technology, and was a visiting professor of materials science and engineering at UCLA in 1985. Most of the creationist interest in the Far East is a direct result of American fundamentalist proselytizing.

H. Enoch, a zoology professor at the University of Madras, India, wrote a popular book *Evolution or Creation?* (1967) published both in India and England, with a Foreword by Sir Cecil Wakeley, president of the Royal College of Surgeons (England), the Bible League, and also of the Evolution Protest Movement. Enoch went on to lead the Creation Scientist's Forum of India. S.E. Aw, a former professor of biochemistry at the National University of Singapore, wrote a book *Chemical Evolution* (1982), originally published in Singapore, then by ICR's Master Books, which is a critique of origin-of-life theories. The Chinese church leader Watchman Nee wrote a series of

“Meditations on Genesis” in Chinese published in Christian magazine from 1925-1927 in which he presents Gap Theory creationism; in 1981 these were published in English as a book, *The Mystery of Creation*.³²

One interesting sub-category of creationism is the theory that the written characters of the Chinese language retain depictions of the story of Creation, Adam and Eve, and the Flood of Genesis, based on the fundamentalist premise that all peoples and nations are descended from Noah a few thousand years ago. This theory was first elaborated in *Genesis and the Chinese* (1950) by Khang Kiat Tien. Khang was born a Catholic in Singapore, but later became a Seventh-day Adventist missionary in China. In his book (available in a 1985 reprint by an Adventist publisher), Khang analyzes many Chinese characters related to the Genesis story and uncovers their original Christian origins.

These ancient Chinese certainly seemed to know the creation story more thoroughly than we do, though we have the Bible record. yet how few believe it! They choose rather to place credence in evolutionary theories which certainly require more faith to believe than the Bible testimony. (Khang 1950:97]

Ethel Nelson, at the time a medical pathologist at a Massachusetts hospital who had formerly lived in Thailand, continued Khang’s research (she spells his name “Kang”) in *The Discovery of Genesis: How the Truths of Genesis Were Found Hidden in the Chinese Language* (Kang and Nelson 1979), which has a Foreword by Lutheran creationist Paul Zimmerman. Nelson’s technique is to select various characters from ancient oracular bone inscriptions and bronzeware, later seal inscriptions, and more modern hieroglyphic forms, and to show how these depict the elements of the story of Creation and the Flood. Various radicals, for instance, are interpreted as depicting the Trinity, God creating man out of the earth, the Garden of Eden, Noah’s Ark, the creation of Eve from Adam, etc. Nelson further developed this idea in *Mysteries Confucius Couldn’t Solve: Analysis of Ancient Facts Shared with Hebrew Scripture* (Nelson and Broadberry 1986), co-authored with a medical lab specialist in Taiwan who is fluent in Chinese.

Kinji Imanishi, a Japanese biologist and also a renowned explorer, is Japan’s most popular writer on evolution. “Indeed, it would not be unreasonable to say that in Japan the average intelligent layman’s understanding of evolution stems in great measure from the writings and innumerable interviews given by Imanishi” (Halstead 1985: 587). Halstead says that many Japanese consider him as important as Darwin. In Imanishi’s view, which self-consciously reflects Japanese culture, the group—not the individual—is the important unit of evolution. He stresses the underlying harmony in nature rather than struggle. Though an evolutionist, Imanishi is strongly anti-Darwinian. He maintains that Darwinism is based on Western European culture and religion. He rejects any notion of ‘survival of the fittest.’ Not only is intraspecific competition non-existent, interspecific competition does not exist either. Species “choose” to seek new habitats, and then diverge. Halstead notes that the crude selectionism which Imanishi has always opposed was also espoused by the militaristic and authoritarian rulers of Japan at the turn of the century (1985:588).

³² Nee founded the Local Church movement, now led by Witness Lee of Anaheim, California, with 130,000 members in Taiwan and the U.S.

Rivista di Biologia is an anti-Darwinian (though not creationist) Italian journal edited by Giuseppe Sermonti. Søren Løvtrup, a macro-mutationist, is a vice-director; the board of advisors includes Gunther Stent³³ of UC Berkeley and Mae-Wan Ho of The Open University in England. Another vice-director is Atuhiro Sibatani, a Japanese biologist who once criticized Imanishi's views, but later converted to them.

LEADERS, FOLLOWERS, AND MID-LEVEL ACTIVISTS

Henry Morris and Duane Gish (ICR president and chief theoretician, and ICR vice president and chief debater, respectively) are very well known to friend and foe alike; there are a few other creationists with national reputations, but none so widely recognized. So prominent are Morris and Gish that many people, again on both sides, are tempted to equate them with the creationist movement. Though they have been by far the most effective leaders in the popularization and dramatic upsurge of creation-science, they did not create it out of nothing. It is important to remember that if Morris and Gish did not exist, there would still be many people ready to take up arms against evolution, and a deep reservoir of anti-evolutionist sentiment among the public ready to be tapped and exploited.

Also well known (at the other end of the spectrum) are various measurements of the public's acceptance of creationism and distrust of evolution. Two widely-reported polls conducted during the California textbook controversies in the 1970s have already been mentioned. The Seventh-day Adventists of Crescent City conducted one poll for the Del Norte County Unified School District in the northwestern corner of the state in 1973. To the question "Should evolution be taught in public schools?," 58% responded *Yes*, and 34% said *No*. To the question "Should creation be taught in public schools?," 89% said *Yes*, and 8% said *No*. Another poll, in Cupertino Union School District near San Jose and high-tech Silicon Valley, was conducted by the Citizens for Scientific Creation, who surveyed 2,000 random households. 84.3% responded *Yes* to the question "Should scientific evidence for creation be presented along with evolution?"; 7.8% said *No*. A 1981 AP/NBC poll indicated that 86% of the public nationwide favored the inclusion of creationism in public schools. A 1982 Gallup poll showed that 44% of Americans believed in recent creation. Other polls have fairly consistently confirmed that from about 70% to well over 80% agree that creationism should be presented in schools as well as evolution.

It seems clear from these results that not only do fundamentalist creationists constitute a sizable segment of the population, but also that a great many other Americans—a large majority, in fact—are impressed by the "equal time" or "balanced treatment" arguments: that it is only "fair" to present the minority "scientific" view as well as the established scientific theory. More recently, questionnaires were sent to 400 randomly-selected biology teachers nationwide; of the 200 who responded, 30% said they would teach divine creation rather than evolution if they had to choose, and 19% thought that humans co-existed with dinosaurs ("Biology Teachers' Responses Stun Pollsters," 1988).

³³ Stent opposes "hyper-evolutionism"—the insistence that all evolved features and traits must be the result of natural selection. In "Scientific Creationism: Nemesis of Sociobiology" (1984), he expresses the hope that creationism and sociobiology will wipe each other out.

Without underrating the importance of highly visible leaders such as Morris and Gish, and the obvious significance of the widespread acceptance of creationism among the public, there is another level which is much less reported on or analyzed, yet of great importance: the mid-level activists, the local and regional leaders, the part-time promoters and lobbyists of creation-science. Toumey (1987), an anthropologist who studied creationist groups and activity in North Carolina, has convincingly emphasized the importance of these mid-level activists who do so much to promote the spread of creationism.

Many of these activists have received training directly from ICR, either at the graduate school itself, or from the ICR summer courses held around the country, or various ICR seminars, workshops, lecture series, and instructional materials. Dave and Mary Jo Nutting are a husband and wife team who run the Alpha Omega Institute of Grand Junction, Colorado. Both Nuttings have masters degrees from the Institute for Creation Research: Dave in geology (1984) and Mary Jo in biology (1983). In 1984, after graduating from ICR, they set up Alpha Omega Institute and began publishing a bi-monthly creation-science newsletter, *Think & Believe*. After temporary employment at Mesa College, the Nuttings devoted themselves to a full-time creationist ministry. They give creation-science seminars and slide presentations at churches, clubs, and at both Christian and public schools. They also run a Science Enrichment Center program consisting of field trips and “hands-on” participation in science learning and research, designed to supplement a Christian science curriculum but also aimed at attracting public school participation as well. They hope to establish a “major science center from a totally Christian perspective” in the near future. Their journal *Think & Believe* relies very directly on ICR arguments and material, and promotes ICR books. They advocate Bliss’s 1984 *Origins; Two Models* text and accompanying video for use in public schools. In “Opportunities to Reach Public Education” (1985:1), the Nuttings explain how they present creationism in public schools. They note with pride that they gave 25 creation-science presentations to public school classes in the past year (1986:4).

A few years ago I met a USC doctoral candidate in education at ICR. He described his research as examination of factors influencing the attitudes of biology teachers regarding creation/evolution, such as religious background and beliefs, education, etc. After a long conversation with Bliss, he then inquired about making arrangements for ICR lecturers to come to Hawaii to present creation-science (he was stationed at an Air Force base in Hawaii; USC has a program for servicemen stationed overseas). Later there was a report in *CEN* (Fezer 1986) from an Arkansas archeologist about a questionnaire circulated to Arkansas science teachers by someone of that name about teaching creationism and evolution, which the archeologist noted seemed biased towards creationism. The person circulating the questionnaire did not give any affiliation, nor did he mention his own preference for creationism. The archeologist expressed concern because of the evident bias of the questions, and asked *CEN* for information.

Thomas J. Kindell, another active creationist lecturer, teacher, debater and writer, says he received his creation-science training at Christ for the Nations Institute in Dallas and at the Institute for Creation Research. He has presented creation-science seminars for over a decade. In Oregon, he “succeeded in putting scientific creationism into the curriculum of several public school districts” (Kindell 1985:2); he also claims success in

debates against evolutionists on campuses, radio and TV. Kindell was vice-president of Creation Concern in Portland, and was the creation-science specialist for Moral Majority of Oregon. Now living in Pomona, California, he is available free for lectures. *Evolution on Trial* (1985), one of several creation-science booklets Kindell has written, has a laudatory Foreword by Duane Gish. Kindell's presentations are very polished and obviously well-rehearsed (I heard him at a local Bible-science meeting; see McIver 1986c), and, especially to a lay audience, he sounds quite knowledgeable and authoritative. His style is easy-going, entertaining. Kindell's theme is that evidence for evolution is based either on outright fraud or on biased interpretations caused by commitment to philosophies and religion (evolution being a "religion"). He said that evolutionists prefer to find only fragmentary evidence, since this affords greater reign for their speculations, and that they are extremely gullible in falling for hoaxes and deliberately falsify evidence.

ICR is not the only training ground for creationist activists. Jim and Darline Robinson, affiliated with the Bible-Science Association, run the Creation Center of Colorado (not to be confused with the Nuttings' Alpha Omega) in Arvada. The Robinsons are former editors and writers of the Christian Edition of the BSA's *Children's Science Readers* from 1977 to 1979. Their Colorado creation-science ministry has the blessing and support of Walter Lang and the BSA. The Robinsons promote biblical as well as "scientific" creationism in their Creation Center: that is, their materials are overtly religious, and are intended for use in Christian institutions rather than public schools. The publications denounce the saturation of public schools, museums, and national parks with the "pagan" philosophy of evolution. In 1985 the Robinsons began publishing a bi-monthly *Children's Creation Readers* series for three grade levels (1-2, 3-5, 6-8), which include simple exercise and activity sheets. The Robinsons have also written six books, including their coloring-book format *Children's Travel Guide & Activities Book* (1981), which presents "the creation view of the Bible as various national parks, monuments, and special places are featured."

Many other creationist proselytizers rely exclusively on materials and arguments from ICR, BSA, and/or CRS. An example is *Searching Science and Scripture* (n.d.), by W.E. Wright, a missionary in Nigeria. His booklet, aimed at Africans, is very directly, "Based upon writings of H.M. Morris" (in particular, Morris 1971). Wright describes his booklet as Morris's creation-science "blended with" his own writing.

For several years I have attended meetings of two local creation-science groups: the San Fernando Chapter of the Bible-Science Association, and the South Bay Creation-Science Association (also affiliated with BSA). These monthly meetings are open to the public, and generally draw several dozen attendees. Each meeting features a different lecturer. The San Fernando Valley BSA chapter is led by David F. Coppedge, the son of James F. Coppedge, author of *Evolution: Possible or Impossible?* (1973), a book about "Molecular Biology and the Laws of Chance in Nontechnical Language." James Coppedge extends the standard creationist probability arguments against chance formation of life, using lots of exceedingly big numbers, and many scientific footnotes. He also cites some personal correspondence with Yale biochemist and biophysicist

Harold Morowitz,³⁴ and acknowledges the assistance of other non-creationist scientists such as Sidney Fox, Linus Pauling, and John Ostrom, plus creationists. Coppedge, who got a Ph.D. for this subject from the California School of Theology, describes himself on the title page as “Director of Probability Research in Biology, Northridge, California.”

David Coppedge, the group leader, is articulate, witty, and knowledgeable, and is a very effective speaker, group leader and organizer. He has studied physics and astronomy at Cal State Northridge, and works in the computer business. He has created his own multi-media presentation called *How Big Is God?*, which he presents at church and religious meetings, and at other Bible-science meetings. Consisting of 500 synchronized slides with music and narration, it dramatically reveals “the Space-Age glory of the God of galaxies—and the Savior of mankind.” The Coppedges and several of the lecturers and group members belong to Grace Community Church, John MacArthur’s super-church in Sun Valley. Coppedge’s Bible-science group carries on the tradition of natural theology, with many field trips and other outings to appreciate God’s glory by studying His creation. Coppedge himself organizes and leads hikes, camping trips, star-gazing trips, various “Creation Safaris,” and other nature-watching expeditions.

The monthly lecturers have included nationally-known creationists such as Walter Lang (BSA), Nell Segraves (CSRC), George Howe (CRS), Duane Gish and John Morris (ICR), and many local proponents of creationists and mid-level activists. (Segraves, in her lecture, told us of several creationist sympathizers in the California department of education and in the judicial system who have aided the CSRC lobbying efforts.) A book table at the meetings features several dozen creation-science and related books, plus sample copies of Bible-Science Newsletter and other creationist literature. The organization is “dedicated to: special creation, literal Bible interpretation, divine design and purpose in nature, a young earth, a universal Noachian Flood, Christ as God and Man, our Savior, [and] Christ-centered scientific research.” Jim Owen, founder of the Christian Wilderness Association, spoke about Christian environmentalism and biblical “stewardship” of nature by man. (This presentation occasioned the only real disagreement I have seen in any of these meetings. Some audience members argued that nature was created by God for man to exploit—biblical “dominion over nature”—and they were suspicious of any attempt to thwart this exploitation. They also argued that animals don’t have souls, so there is nothing wrong with killing them for our use.) A computer and aerospace engineer spoke about Halley’s Comet, and presented the creationist argument that the short-term comets indicate a young age for the universe. A Los Angeles audiologist lectured on design in the human ear. Art Battson of Students for Origins Research spoke about natural selection.

One active member of the group, a graduate student in paleoanthropology who is writing a creationist anthropology book under the pseudonym Phil Davidson, has spoken about dinosaurs and the Bible, and has presented his creationist interpretation of human races. His book, *The Origin of the Human Races: A Creation Perspective*, tentatively to be published by ICR’s Master Books, fully accepts “microevolution”—that is, adaptation to regional and environmental conditions, but says that the originally created human pair contained enough genetic variability to allow all of this adaptation. He rejects essentialist

³⁴ Morowitz testified against creation-science in the Arkansas trial, but describes himself as a “mystic scientist” and a “pantheist,” and an admirer of Teilhard. In a 1987 book he used the anthropic principle to argue that the universe shows evident Design

notions of human races, and supports the modern anthropological idea that different human traits are distributed in different clines, making it impossible to define races strictly.

Another speaker, a UCLA doctoral candidate in Near Eastern Studies who teaches at Cal State Northridge, spoke about archeological research he has done in Syria (digs sponsored by UCLA, and partly funded by Ambassador College) in relation to the origins of Genesis. He denied that archeology could “prove” the Bible true, since our faith is not based on reason, and that he already knew it was true. His interpretation of the various Mesopotamian flood accounts was that the biblical Flood story was transmitted orally by Abraham’s line to Moses, and remained perfectly preserved, but that other flood accounts are degenerate versions, containing various inaccuracies and perversions. This speaker was more skeptical than most creationists: he dismissed many of the more naive Bible-science claims, such as the sensationalist claims about the Ebla tablets as proof of Sodom and Gomorrah, etc. (see for instance C. Wilson 1979); he also denied that “liberal” archeologists deliberately seek to distort their findings, and maintained that there is no stratigraphical record of the Flood.

Bill Waisgerber, a consulting geologist from Sepulveda, lectured on the Grand Canyon. Though he has written articles for *CRSQ* on this (Waisgerber et al. 1987, Waisgerber 1987), he does not support the strict creationist Flood Geology model. He said he was anti-evolutionist but had no particular creation theory. Our job, he concluded, is to attack evolution (and all science that supports evolution), not to defend creationism, since that only gets us into trouble.

Two new Moody Institute of Science films have been previewed at other meetings: *Journey of Life* (1985), and *Distinctly Human* (1988), with an accompanying talk by one of the MIS producers; also D. James Kennedy’s film *The Case for Creation*, and Ken Ham’s Films for Christ movie *The Genesis Solution*.

Although the San Fernando Valley Bible-Science Association encourages visitors, I have never seen evidence of any non-creationists in attendance in all the meetings I have been to. The only outside coverage I have seen was a newspaper report about one meeting (which I didn’t attend) in the local edition of the *L.A. Times* (McGarry 1987). The column carried the heading “‘Ooh, look, dino poop,’ trilled a woman about a rock the size and shape of an armadillo.” It ridiculed the members as naive biblical literalists assaulting science. The lecturer at that meeting, a Lutheran minister, brought his fossil collection, which included dinosaur coprolites, and presented the standard creationist young-earth Flood Geology scenario. Some of the people who attend these meetings are indeed quite naïve scientifically, and willing to believe almost anything as long as a trustworthy authority pronounces it biblical, but (despite the rather smug tone of the *Times* column) most also have a genuine interest in nature, and many are trained in technical fields.

The South Bay Creation Science Association, in Torrance, is similarly organized, and many lecturers have appeared before both groups. Its statement of belief affirms

1. Special Creation rather than a creation by development from one form of life to another.
2. Divine design and purpose in nature, as opposed to an unorganized, chance development
3. A universal Noachian flood
4. Christ as God and Man, as our ONLY Substitute and Savior.

It is “dedicated to bringing to light the amazing new scientific evidence against mega-evolution and in favor of Biblical Creation.” The president, Fred Willson, a biology teacher at South Torrance High School, has written reports such as *A Method of Teaching Creation/Evolution in the Secular School System* (n.d.) based on his teaching experience. Recently, he has joined Richard Bliss of ICR in presenting ICR Science Curriculum Workshops for Christian teachers. Clifford Lillo, another board member, contributes frequently to the *Creation Research Society Quarterly* (and, coincidentally, is reviewing my anti-evolution bibliography for *CRSQ*).

Like the San Fernando Valley group, this group meets Saturday evening once a month (several Southern California Bible-science groups stagger their meetings so that they don't meet the same weeks). Meetings are in a room at a local restaurant, with the lecture following dinner. (The San Fernando group now usually meets at the Coppedge “ranch,” which has meeting and kitchen facilities.) There is also a book table with creationist materials, and audiocassettes of most of the previous meetings are available.

Speakers at the South Bay group have included Kelly Segraves of CSRC and Dennis Wagner of Students for Origins, plus several of the people already mentioned who have also lectured to the San Fernando Valley group, including Walter Lang. Thomas Kindell has given three presentations to this group, besides lecturing to the SFVBSA. Bolton Davidheiser, biology professor at Biola University in La Mirada and author of *Evolution and Christian Thought* (1969), has also lectured to both groups. Linn Carothers has lectured on ape language studies to both groups. Carothers, a Ph.D. candidate at The Master's College in Newhall, has a science B.S. from USC and a biostatistics M.S. from Cal State Northridge. (Jim Owen of the Christian Wilderness Association, and George Howe of the Creation Research Society are faculty members at The Master's College.)

Galen Hunsicker, a zoology professor at Southern California College in Costa Mesa, spoke on design in zoology. Douglas Dean, the Pepperdine University biology professor, has also lectured; he said that the Bible provides answers to things that science doesn't, and is therefore superior. He also said that the evolutionist BSCS high school biology textbook claims there are 300 similarities between humans and apes, but fails to tell us that there are 600 differences. Dean, who believes the earth is less than 10,000 years old, said that there were no anti-creationists on the faculty at Pepperdine (though not everybody openly advocates it either). He said that Nobel laureate W.F. Libby, who developed the radiocarbon dating method, admitted that it gave incorrect results under some conditions. Dean told the group that Libby, while a visiting professor at Pepperdine after his retirement from UCLA, said that he “gave up” on radiocarbon dating because it was so often in error.

John Read, a senior engineer with Hughes Aircraft, spoke about radiometric dating methods, presenting standard creationist criticisms. Read heads an organization in Culver City called Scientific-Technical Presentations, which produces creation-science filmstrips and distributes other audiovisual materials and literature. Read, with “assistance from” Clifford Burdick, wrote *Fossils, Strata and Evolution: A Test of the Credibility of the Evolution Theory* (1979). In his talk, Read said that a presentation he gave to the Board of Education in Sacramento was picked up by Chick Publications, and that now he gets requests from around the world about the problems of various dating methods. Charles Cook, leader of the Creation Studies Ministry in Grand Terrace, and

author of *Exploding the Evolution Dogma Myth* (1981) and similar works, has lectured twice on “Darwinism: The Greatest Deception in the History of Science Teaching.” Christopher Chui, leader of the Creation Science Association of Orange County, usually attends the South Bay meetings as well, where he distributes some of his literature. Chui, who grew up in communist China, moved to Hong Kong and converted from atheism to Christianity, then emigrated to Canada where he became an ardent creationist after hearing Henry Morris speak. He founded the Creation Science Association of Ontario before moving to California, where he works as an engineer, and has presented at national creation conferences.

LIBERAL-CONSERVATIVE SPECTRUM OF BIBLE-SCIENCE BELIEFS

Fundamentalist Bible-science includes various beliefs and doctrines which can be arranged in a spectrum from the most narrowly literalist and reactionary to the (relatively) liberal. Old-earth creationists of various sorts constitute the “liberal” wing of creationism. Strict young-earth creationists occupy the middle; even more conservative are the geocentrists, with flat-earthers on the extreme right. All these Bible-science types insist that the Bible is inerrant in the realm of science as well as religion, and that these doctrines are straightforward readings of Scripture. Each type advocates the Bible-science doctrines of those to their left, but insists that they have not gone far enough. Old-earth creationists reject evolution because the Bible plainly teaches creationism, but young-earth creationists further insist that it clearly teaches recent creation in six literal days. Geocentrists reject evolution just as strenuously as other creationists, but argue that for these same reasons we should accept geocentricity, which the Bible clearly presupposes. Each type also argues that Bible-scientists to their right on the spectrum are mistakenly trying to force literal interpretations on passages which are obviously metaphorical or phenomenological. Recall that fundamentalist Bible-scientists insist that the Bible is wholly inerrant, but all admit that some passages cannot be taken literally. Those on the conservative end of the spectrum are more thorough-going literalists than those on the liberal end.

Creationists, of course, have gained widespread public recognition and support (though most people mistakenly assume that all creationists are young-earthers), but geocentrists constitute a large and growing minority among creationists. Walter Lang, long-time head of the Bible-Science Association, is sympathetic to geocentrism. Harold Armstrong, editor of the *Creation Research Society Quarterly* from 1973 to 1983, is a geocentrist. Modern geocentrist creationists advocate the Tychonian system rather than the Ptolemaic. Tycho Brahe converted Copernicus’s heliocentric system back to geocentrism by conceding that the planets all revolved around the sun, but insisted that the sun revolved around the earth, which remained motionless in the center.

Gerardus Bouw, who has a Ph.D. in astronomy from Case Institute of Technology (now Case-Western) and now teaches computer science at Baldwin-Wallace College in Ohio, is editor of the *Bulletin of the Tychonian Society*, a geocentrist journal. The Society’s Statement of Belief reads:

The Tychonian Society holds that the only absolutely trustworthy information about the origin and purpose of all that exists and happens is given by God, our Creator and Redeemer, in His infallible Word, the Bible. All scientific endeavor which does not accept this Revelation from on High without any reservations,

literary, philosophical or whatsoever, we reject as already condemned in its unprovable first assumptions. We believe that Creation was completed in six twenty-four hour days and that the world is not older than about six thousand years, but beyond that we maintain that the Bible teaches us an Earth that cannot be moved...and hence absolutely at rest in the centre of the Universe.

Bouw goes on to state that the abandonment of geocentrism has resulted in the current atheistic existentialism which preaches that life is really meaningless.

After all, geocentricity and not heliocentricity is perceived by our senses. The problem is that science falsely-so-called has in the past one hundred years been more involved with promoting the ancient Greco-Babylonian superstition of evolution and fighting belief in the Judeo-Christian God than they have been concerned with truth. Could it be that John Q. Public now has a better understanding of theory, belief, and faith than does Dr. Establishment Scientist? [1989:19]

Bouw has written a book defending geocentricity, *With Every Wind of Doctrine: Biblical, Historical and Scientific Perspectives on Geocentricity* (1984), in which he insists on the absolute authority and inerrancy of the Bible, and demonstrates quite convincingly, by thorough exegesis, that the Bible indeed teaches geocentricity. He refutes the various claims by non-geocentrist Bible-scientists of Bible passages alleged to prove heliocentricity. Although Bouw doubts the validity of Einsteinian relativity (especially its supposed moral consequences), he relies on the relativistic claim that science cannot demonstrate any absolute center or fixed, motionless reference point in the universe, and thus science cannot prove (absolutely) that the earth orbits the sun or vice-versa. But, argues Bouw, the Bible is an absolute source of truth and it *does* say where the center of the universe is: the Earth.

James Hanson, a professor of computer science at Cleveland State University, contributes to CRSQ as well as to Bouw's geocentrist journal. In *A New Interest in Geocentricity*, an edited transcript of a talk given to the Association of Christian Schools, published by BSA, Hanson presents both scientific and biblical reasons for geocentricity. "I sincerely believe that evolution and heliocentricity go together... To me it appears as inconsistent for people to accept creation and then to oppose geocentricity" (1979:3).

At the 1985 National Conference on Creationism, sponsored by the Bible-Science Association, the concluding and featured event was a formal debate on geocentrism vs. heliocentrism. Hanson teamed up with Bouw for the geocentrist side. This event revealed the deep differences of opinions among Bible-scientists and creationists regarding geocentrism. Though it was the main event of the conference, the debate was not included in the *Proceedings of the 11th Bible-Science Association National Conference* (BSA 1985), nor were Elmendorf's geocentrist presentations. Though Lang is tolerant of geocentrism, the newer BSA leaders are not, and other major creation-science groups such as ICR reject it contemptuously as scientifically (and biblically) preposterous—just as the geocentrists, along with all other Bible-scientists except a few individuals on the extreme right, dismiss flat-earthism as unscientific nonsense. Gish, for example, expresses his contempt for the scientific claims of evolution theory by comparing it with geocentrism, which he points out was once also accepted by establishment scientists (1979:23; Gish equates geocentrism with the Ptolemaic theory, unlike modern Tychonian geocentrists, however). In fact, nobody from ICR attended the 1985 Conference, though they have been prominent at all others; it may be that they wished to dissociate themselves from geocentrism. However, Richard Niessen, an

apologetics and Bible professor at ICR's Christian Heritage College who has written several ICR *Impact* articles, did attend and teamed up with a Christian (though non-creationist) astronomer to debate Bouw and Hanson. In the debate, Bouw and Hanson emphasized that astrodynamical equations based on either a geocentric or heliocentric model work equally well.

R.G. Elmendorf, the whimsical Catholic creationist engineer, gave two presentations on geocentrism at the 1985 conference (not in the published conference Proceedings), in which he demonstrated the Principle of Relative Motion, and noted that one's choice of an absolute reference point is a scientifically arbitrary philosophical decision. Scientists cannot prove whether the earth moves or not, but, said Elmendorf, we know that "The sun moves because the Bible says it does." He pointed out that planetarium projection machines use a geocentric model. If part of the Bible is false, he argued (referring to geocentric passages), how can we trust any of it? He then made a disparaging remark about the Flat Earth Society (which of course uses the same argument about the danger of rejecting any part of the Bible), saying that we know the earth isn't flat. Elmendorf demonstrates the relativity of motion by means of his "celestial Motion Illustrator" (1977): a simple paper cutout which shows that the observed motion of planets and other celestial bodies is exactly the same relative to the earth regardless of whether the earth goes around the sun or vice-versa, as long as the planets continue to orbit the sun (the Tychonian system). In a letter to Bouw's *Tychonian* journal (1988-89), Elmendorf described how one prominent creationist snubbed him because he was a geocentrist; Bouw promptly revealed editorially that it was ICR creationist lawyer Wendell Bird.

The founder of the modern flat-earth movement, Samuel Rowbotham, who used the pseudonym "Parallax," "repeatedly emphasized the importance of sticking to the facts," according to Robert Schadewald, an authority on flat-earthism.

[Rowbotham] called his system "zetetic astronomy"... because he sought only facts and left mere theories to the likes of Copernicus and Newton. Rowbotham devoted the entire first chapter of his magnum opus to praising facts at the expense of theories, concluding, "Let the practice of theorising be abandoned as one oppressive to the reasoning powers, fatal to the development of truth, and, in every sense, inimical to the solid progress of sound philosophy." [Schadewald 1981-82:43]

In 1880 John Hampden, an Oxford graduate and flat-earth advocate, argued for Creation "nearly six thousand years ago" in six solar days. "If the Mosaic records of Creation are provably false, our Saviour himself wilfully and persistently condoned fraud..." In 1870, Hampden publicly offered a reward to any scientist who could prove the earth was not flat. Alfred Russel Wallace, the co-discoverer of evolution by natural selection, accepted this challenge, and a test was set up using level sightings along a long straight canal stretch which showed curvature of the earth's surface. (Hampden, however, refused to accept these results, and a series of lawsuits followed.) Needless to say, Charles K. Johnson of Lancaster, California, president of the Flat Earth Society, defends flat-earthism on biblical grounds, and also appeals to logic, reason and common sense. He says that non-geocentric scientists are liars, and that the alleged space program is really just trick photography from NASA.

Unlike geocentrism, which has significant social support within the larger creationist community, belief in a flat earth is almost, but not quite, extinct. Flat-earthers are ridiculed by creationists and even geocentrists for being laughably unscientific. Even

though biblical verses may seem to presuppose a flat earth, we know it isn't flat, say other Bible-scientists; therefore those passages must not be meant literally. Similarly, non-geocentrist creationists know the earth orbits the sun, so geocentrist passages must not be meant literally. Meanwhile, the flat-earthers, like the geocentrists, insist that denying their doctrines is denying biblical inerrancy and rejecting part of God's Word. The reason there are virtually no flat-earth Bible-scientists today is not simply that the earth's sphericity is that much more obvious or well-proven than evolution, but also because the perceived moral aspects of evolutionist belief are so obvious, whereas there is little moral dimension to the shape of the earth. Thus there is no social support for flat-earthism, but enormous and widespread sympathy for anti-evolutionism, though their Bible-science justification relies on exactly the same sorts of arguments. What is surprising is the current level of support among Bible-scientists for geocentrism, given that it too seems to carry little moral luggage. Perhaps it is because the Bible so clearly employs a geocentrist model, coupled with the Tychonian system which preserves astrodynamic calculations and the relativistic conception of science as unable to prove any absolute reference point in space.

CHAPTER 6

DIVERSITY OF CREATIONIST THEORY

YOUNG-EARTH CREATIONISM

Within creationism itself, there are “liberals”—old-earth creationists who accept standard geological and paleontological chronology—and “conservatives”—strict young-earth creationists who refuse to believe that the earth is older than a literal reading of the genealogies in Genesis implies: some 6,000 years or so. Among the old-earthers, there are several major interpretations, and many variations and combinations of these. These creationist interpretations will be discussed separately. The two major old-earth creationist schemes are “Day-Age” creationism and “Gap Theory” creationism; also popular are “progressive creationism,” the “framework” or “literary” theory of creationism, and the “revelatory” theory.

Prior to the rise of the science of geology, most Christians assumed the earth to be no older than implied by a straightforward reading of Genesis. Luther and Calvin, for instance, believed that the world was less than 6,000 years old. In this literal interpretation, the number of years elapsed since the Flood and Creation itself can be computed by means of the various series of “begats” and by use of other textual evidence. Many different dates have been arrived at, due to inconsistencies and ambiguities in the text, and differences in translations, but Creation is usually dated by these methods at around 4000 B.C., using calculations from the Hebrew scriptures (calculations from the Greek Septuagint usually places creation about 1500 years earlier).

This total age of a little less than 6000 years was reinforced by the popular traditional scheme of a cosmic week for earthly existence, with each ‘day’ (corresponding to the six days of Creation) lasting a millennium: believers felt they were living near the time of the Second Coming and the final Millennium. (Oddly, this allegorical interpretation was not applied to the six creation days themselves, as in Day-Age creationism, but rather to subsequent history in general.) The careful calculations of James Ussher, Archbishop of Armagh, Ireland, and vice-chancellor of Trinity College, Dublin, have achieved almost canonical status by virtue of inclusion in the marginal notes of the 1701 edition of the Authorized (King James) English Bible, and in many subsequent editions. Many readers, finding Ussher’s date in their Bibles, have assumed that it was part of Scripture itself, or a necessarily true deduction from Scripture.

Ussher, a highly respected biblical scholar, arrived at a date of 4004 B.C. for Creation in *The Annals of the World*, published in Latin in 1650 and in English in 1654. He analyzed four different sources of the Pentateuch, though he considered the Hebrew, which gave a result of 1656 years between Creation and the Flood, as the most reliable. Ussher calculated his date of creation not only from study of Old Testament genealogies, but also from analysis of astronomical and calendrical cycles. He calculated the calendrical zero-point (when the solar, lunar, and Paschal cycles were all simultaneously at zero) to be 4714 B.C.: i.e. 710 years before Creation itself. “Which beginning of time, according to our chronologie, fell upon the entrance of the night preceding the twenty

third day of October in the year of the Julian calendar, 710” (quoted in Brice 1982:18). Thus, Creation commenced on Saturday evening, October 22nd. According to Brice, “Ussher was aware of the provisional nature of this estimate and how much it depended on various readings” (1982:23)—though many fundamentalists since have not been.

It is commonly but erroneously asserted (particularly by anti-creationists) that Ussher’s date for Creation was “improved upon” by John Lightfoot, a distinguished biblical scholar, and later vice-chancellor of Cambridge University, who, by further calculations of even greater precision, determined that Creation had occurred at 9 AM. This misconception spread after inclusion in Andrew White’s polemical work *A History of the Warfare of Science with Theology* in 1896. White quoted Lightfoot as saying that “heaven and earth, centre and circumference, were created all together, in the same instant, and clouds full of water,” and that “this work took place and man was created by the Trinity on October 23, 4004 B.C., at nine o’clock in the morning” (White 1960:(I):9). (This claim was entered into evidence at the Scopes Trial (National Book 1925:255]. It was also quoted by Bertrand Russell in his *Religion and Science* (1935:52].) Lightfoot’s work in fact preceded Ussher’s. The book in which he mentioned 9 AM as the time of creation was written in 1642, and the time of day referred to the creation of man (not the world). In several later works (all prior to Ussher’s), Lightfoot demonstrated his system of determining chronology by correlating the lifespans of the Old Testament patriarchs. By his calculations, Creation occurred 3928 B.C., on the autumnal equinox (September).

As geology developed into a true science in the eighteenth and early nineteenth centuries, it became increasingly apparent that this newly discovered dimension of “geological time” was vastly greater than a literal interpretation of Genesis chronology allowed. Both Day-Age and Gap Theory creationism (plus various hybrid schemes) were widely endorsed in order to accommodate the immense spans of time now required by science. Strict recent creation was largely abandoned, at least by those who claimed confirmation from science. It was George McCready Price who resurrected recent creationism as a scientifically defensible doctrine, following Ellen G. White, who insisted on the most literal interpretation of the Genesis account. White and Price also re-invented Flood Geology in order to account for the earth’s geological features, which contemporary geologists were explaining in terms of uniformitarian principles and great “geological ages.” In dozens of books written throughout the first half of this century, Price attacked evolution and the geological chronology upon which it was based.

Price inspired a return to recent creationism by other Bible-scientists, culminating in its current popularization by Henry Morris and many others. But throughout most of this period, recent creationism and Flood Geology were not majority views among creationist leaders. The emerging fundamentalist movement did not make evolution a top priority until after the First World War, and even in the 1920s, at the height of fundamentalist activity, recent creationism was but one of three popular creationist models, vying with Day-Age and Gap Theory creationism. This inability by Bible-scientists and creationists to agree upon a theory of creation weakened their position, as Numbers (1982:540) has pointed out. Among the top creationist leaders, Price insisted on recent creation and Flood Geology, while Rimmer advocated Gap Theory creationism and Riley defended Day-Age creationism. In *Scriptural Inspiration versus Scientific Imagination* (1922), a volume on the Great Christian Fundamentals Conference held in Los Angeles in 1922, a major fundamentalist gathering, three of the speakers focused on

attacking evolution. Of the three, Leander Keyser supported Price's strict recent creationism, while A.C. Dixon, editor of *The Fundamentals*, supported Gap Theory creationism, and Riley argued for Day-Age creationism. Since Whitcomb and Morris's 1961 *Genesis Flood*, recent creationism has come to the fore, but Day-Age, Gap Theory, and other old-earth creationist schemes remain surprisingly popular.

GAP THEORY

The Gap Theory, also known as the "ruin-restitution" or "reconstruction" theory, preserves the Genesis creation account as six literal days, of recent occurrence, but assumes that the vast ages so well attested to by science occurred prior to this set of events. In other words, the earth—and life—was created *before* the Creation Week of Genesis. This exegesis is accomplished by postulating a tremendous "gap" between the very first two verses of Genesis, into which go all the geological ages:

[Genesis 1:1] In the beginning God created the heaven and the earth.

[... GAP ...]

[Genesis 1:2] And the earth was ["became"] without form, and void;...

The universe—heaven and earth—was originally ("in the beginning") created many aeons ago; life flourished for millions or billions of years. But this world grew to be evil, and God destroyed it in a gigantic cataclysm. Earth became "without form and void" as a result of this destruction. (Gap theorists hold that the verb in the second verse is more accurately translated as *became* or *had become* rather than as *was*. The familiar six-day creation—re-creation really—then followed, mere thousands of years ago, upon the ruin and chaos of this ancient former world.

Gap Theory advocates, by this maneuver, are able to reconcile the scientific evidence for an old earth and universe and for life itself with Genesis. They maintain that this interpretation preserves biblical inerrancy and even literalism (though it is clearly not the plainest and most literal interpretation), while allowing for indefinitely long ages as demanded by science. They reject evolution just as strenuously as the young-earth creationists. The re-creation, some six thousand or so years ago, was not entirely *ex nihilo* (although humans may have been created out of nothing) but it was certainly by divine fiat. Therefore, although they differ markedly from "strict" creationists regarding the age of the earth, their anti-evolution attitudes and arguments are virtually identical.

The Gap Theory, incidentally, has nothing to do with the fact that there are two somewhat contradictory creation accounts in Genesis. Because gap theory creationism has received little attention compared to young-earth creationism, and because its proponents tend to use the same anti-evolution arguments anyway, many critics of creationism are unaware of it or are confused about what it is. The founders of the British anti-creationist group APE, for instance, erroneously reported that the gap theory "proposes that geology happened sometime between the Fall and the Flood" (Howgate and Lewis 1984:703). Cavanaugh, in his otherwise excellent sociological study of creationism, mistook the gap theory as an attempt to reconcile the two Genesis creation accounts (1983:169n), as have others.

This is a common misconception. According to gap theorists, *both* creation accounts—Gen. 1:1 through 2:3, and Gen. 2-4 through 3:24—concern the re-creation. I know of only two works which claim that the two Genesis accounts actually refer to two separate creations. The first is A.J. Ferris’s *The Conflict of Science and Religion* (n.d.), in which he writes that some races of mankind—Negroes, Mongols, etc.—were created in the first chapter of Genesis (to which he gives a Day-Age interpretation). Ferris says the second chapter concerns the creation of Adam and the Adamic (Nordic-Celtic) race. The second book is E.K.V. Pearce’s *Who Was Adam?* (1969). Pearce suggests that there were *two* Adams: the Adam of the first creation account lived in the Old Stone Age; the Adam of Genesis 2 lived in the New Stone Age.

The standard way in which the two creation accounts of Genesis are reconciled, by both young-earth and gap-theory creationists, is by considering the first account as narrated from God’s perspective—the creation of the whole Cosmos—while the second has a narrower focus on the creation of mankind, as told from the perspective of Adam. This of course does not eliminate the conflicts between the two, but that is another story. They were composed at different times, and reflect different concerns. The first creation story was composed during the Babylonian captivity and reflects much of the Mesopotamian myth and cosmogony to which the Hebrews were then exposed, according to Hyers (1984), or perhaps somewhat earlier, according to Friedman (1987). The second creation story was composed several hundred years earlier in the Solomonic Empire (Hyers) or possibly slightly later (Friedman), and reflects a somewhat nostalgic concern with the southern Hebrew’s nomadic pastoral traditions and myths.

The Gap Theory became increasingly attractive during the first half of the nineteenth century, as the new scientific discipline of geology made it increasingly difficult to accept the plainest, most literal interpretation of Genesis chronology and attribution of all geophysical features to the Flood. The Gap Theory provided an attractive escape from this dilemma, allowing religious geologists to preserve both their faith in the Bible and in the new authority of science, which, according to Natural Theology, was considered a second revelation: God’s Word in nature as well as in scripture. Since the two revelations could not contradict each other—most geologists of this era were good Christian believers convinced that God’s truth was discoverable in nature—some means of reconciliation or harmonization had to be found.

The Gap Theory proved to be an almost irresistible temptation to many creationists, and, despite the efforts of Price, continued to gain adherents in the first half of this century. In a scholarly appraisal of creationist theories, Bernard Ramm, an evangelical, wrote:

The gap theory has become the standard interpretation throughout hyper-orthodoxy, appearing in an endless stream of books, booklets, Bible studies, and periodical articles. In fact, it has become so sacrosanct with some that to question it is equivalent to tampering with Sacred Scripture or to manifest modernistic leanings. (1954:135]

The Gap Theory may not be the “standard” creationist interpretation today—Ramm was writing a few years prior to the re-emergence of young-earth Flood Geology creationism beginning in the 1960s—but it is still surprisingly popular.

Arthur Custance, the Canadian physiologist, anthropologist and author of the *Doorway Papers* series, wrote a privately published book, *Without Form and Void*

(1970), arguing for the Gap Theory. This book is considered the strongest and most able defense of the Gap Theory available. (Custance also defends the Gap Theory at length in “Between the Lines,” in Custance 1977.) Custance, who also holds a master’s degree in oriental languages, makes a valiant attempt to demonstrate the validity of Gap Theory biblical exegesis by analysis of the Hebrew, Greek, and Latin versions and by study of other Bible passages claimed to support this interpretation. He also claims that belief in the Gap Theory antedated the aforementioned conflict engendered by the discovery of geological ages—that the ancient Bible commentators and early church fathers endorsed it and that it is, in fact, the orthodox view rather than a desperate maneuver to avoid the inescapable dilemma posed by the rising science of geology. Custance translates the opening verses thus: “In a former state God perfected the heavens and earth; but the earth had become a devastated ruin” (1977:97).

Weston Fields responded just as vigorously to Custance a few years later in his book *Unformed and Unfilled: A Critique of the Gap Theory* (1976), originally written as an M.Div. thesis for Grace Theological Seminary. Fields exhaustively refuted all of Custance’s Gap Theory arguments and added the standard creation-science evidences for a young earth. He denied Custance’s claim of early support for the Gap Theory, arguing that some of the ancient commentators perhaps supposed that there was an interval between Genesis 1:1 and 1:2 but that none of them ever posited a gap of vast ages with a “ruin-and-reconstruction” scenario. Among these early Gap Theory proponents claimed by Custance and refuted by Fields are the English poet Caedmon about 650, King Edgar of England in the tenth century, Episcopius of Holland in the seventeenth century, and commentaries in the *Zohar* (Book of Light, or Illumination), a collection of Jewish cabalistic and mystical traditions claiming to date from the second century but actually composed in medieval Spain. According to Fields, the first genuine statements of the Gap Theory were proposed in 1776 by J.C. Rosenmüller and in 1791 by J.A. Dathe.

I suspect that both Custance and Fields derived much of their evidence regarding early gap theorists from Edward Hitchcock, the Amherst College geologist, who advocated the Gap Theory quite authoritatively just prior to Darwin in several works (1836, 1851). Hitchcock quotes and discusses many early Gap Theory supporters. In *Religion of Geology*, Hitchcock notes that several commentators have maintained that the creation described in Genesis was out of pre-existing materials rather than *ex nihilo*; he mentions “Doederlin and Dathe in Germany, Milton in England, and Bush and Schmucker in this country [U.S.]”

They do not deny that the Bible, in other places, teaches distinctly the creation of the universe out of nothing. But they contend that the word translated to create, in the first verse of Genesis, teaches only a renovation, or remodeling, of the universe from matter already in existence. [1851:37]

Early church fathers believed in a long period prior to man’s creation (1851:41), and “supposed that the first verse of Genesis describes the creation of matter distinct from, and prior to, the work of the six days.” He cites Augustine, Theodoret, Justin Martyr, Gregory Nazianzen, Basil, Caesarius, and Origen.

Hitchcock argued that the Bible describes things according to “optical” (phenomenological) rather than “physical” truth, and quotes Rosenmüller as advocating the same view (1851:35). He also quotes Rosenmüller’s argument that God’s command in Genesis to create light is better translated as “let lights be”: a command that the

(already existing) sun now serve to distinguish day from night in the re-creation (1851:43). After persuasively demonstrating the evidence for the obvious succession of ages as shown by paleontology and geology, thereby demolishing Flood Geology and young-earth creationism, Hitchcock says:

Now, these results are no longer to be regarded as the dreams of fancy, but the legitimate deductions from long and careful observation of facts. And can any reasonable man conceive how such changes can have taken place since the six days of creation, or within the last six thousand years? In order to reconcile them with such a supposition, we must admit of hypotheses and absurdities more wild and extravagant than have ever been charged upon geology. But admit of a long period between the first creative act and the six days, and all difficulties vanish. [1851:56]

Whatever its precedents, it was definitely Thomas Chalmers (praised highly by Hitchcock), a divinity professor at the University of Edinburgh, who first popularized the Gap Theory. He first lectured on it in 1814, attributing it to Episcopus, and discussed it in an article “Evidences and Authority of the Christian Revelation” he wrote for the *Encyclopedia Britannica* that year (re-published as a booklet in 1815).

My own opinion, as published in 1814, is that it [Genesis 1:1] forms no part of the first day—but refers to a period of indefinite antiquity when God created the worlds out of nothing. The commencement of the first day’s work I hold to be the moving of God’s Spirit upon the face of the waters. We can allow geology the amplest time—without infringing even on the literalities of the Mosaic record... [Chalmers, quoted in Bixler 1986:86-87]

Chalmers was greatly admired and extremely influential. He founded the Free Church of Scotland, was well respected for his work with the poor, and wrote one of the famous Bridgewater Treatises. The Gap Theory became a respectable means of harmonization due in large part to Chalmers’ prestigious advocacy. He may well be the actual inventor of it as well, at least in the standard form in which it is known today, allowing for all of modern geology’s ages prior to the Adamic creation.

William Buckland, the first geology professor at Cambridge and another Bridgewater author, fell back on the Gap Theory after retreating from his earlier, more extreme catastrophist position. In his *Reliquiae Diluvianae* (1823), he had argued that the worldwide Flood had left much evidence, but only in the upper geological strata; later, he acknowledged that Agassiz’s new glacial geology fit the evidence better and gave up even his modified Flood geology. In his Bridgewater Treatise, *Geology and Mineralogy, Considered with Reference to Natural Theology* (1836), he admitted that Flood Geology was not an adequate explanation for even the upper strata. Geology has demonstrated that the earth has “advanced through a series of creative operations, succeeding one another at long and definite intervals of time” (1836:11), and paleontology showed a long and extended succession of life forms. The Mosaic Deluge, he wrote,

is irreconcilable with the enormous thickness and almost infinite subdivisions of these strata, and with the numerous and regular successions which they contain of the remains of animals and vegetables, differing more and more widely from existing species, as the strata in which we find them are placed at greater depths. The fact that a large proportion of these remains belong to extinct genera, and almost all of them to extinct species, that lived and multiplied and died on or near the spots where they are now found, shows that the strata in which they occur were deposited slowly and gradually, during long periods of time, and at widely distant intervals. [1836:16-17]

“These extinct animals and vegetables,” he continues, “could therefore have formed no part of the creation with which we are immediately concerned,” since transformation—evolution—was not a viable option for Buckland.

Buckland praises Chalmers’ Gap Theory, and states that he first expressed his support for it in his 1820 Oxford inaugural lecture. In his *Bridgewater Treatise* he wrote that the opening verse of Genesis alludes to:

an undefined period of time, which was antecedent to the last great change that affected the surface of the earth, and to the creation of its present animal and vegetable inhabitants; during which period a long series of operations and revolutions may have been going on; which, as they are wholly unconnected with the history of the human race, are passed over in silence by the sacred historian... [1836:19]

The Mosaic narrative commences with a declaration, that “In the beginning God created the heaven and the earth.” These few words of Genesis may be fairly appealed to by the geologist, as containing a brief statement of the creation of the material elements, at a time distinctly preceding the operations of the first day: it is nowhere affirmed that God created the heaven and the earth in the *first day*, but in the *beginning*; this beginning may have been an epoch at an unmeasured distance, followed by periods of undefined duration, during which all the physical operations disclosed by Geology were going on.

The first verse of Genesis, therefore, seems explicitly to assert the creation of the Universe; “the heaven,” including the sidereal systems; “and the earth,” more especially specifying our own planet, as the subsequent scene of the operations of the six days about to be described: no information is given as to events which may have occurred upon this earth, unconnected with the history of man, between the creation of its component matter recorded in the first verse, and the era at which its history is resumed in the second verse; nor is any limit fixed to the time during which these intermediate events may have been going on: millions of millions of years may have occupied the indefinite interval, between the beginning in which God created the heaven and the earth, and the evening or commencement of the first day of the Mosaic narrative.

The second verse may describe the condition of the earth on the evening of this first day... This first evening may be considered as the termination of the indefinite time which followed the primeval creation announced in the first verse, and as the commencement of the first of the six succeeding days, in which the earth was to be fitted up, and peopled in a manner fit for the reception of mankind. We have in this second verse, a distinct mention of earth and waters, as already existing, and involved in darkness; their condition also is described as a state of confusion and emptiness, (*tohu bohu*), words which are usually interpreted by the vague and indefinite Greek term, “chaos,” and which may by geologically considered as designating the wreck and ruins of a former world. [1836:20-26]

For geologists such as Buckland, the Gap Theory was often a means of retaining—or at least professing to retain—belief in the Bible as God’s literal Word while proceeding with the business of discovering earth’s actual history through scientific investigation. Scriptural Geologists, and other literalists, however, lamented Buckland’s defection from his more conservative interpretation.

John Bird Sumner, Archbishop of Canterbury, also urged reconciliation of geology and scripture. In his *Treatise on the Records of Creation* (1816), he argued that Moses, speaking to a pre-scientific audience, simplified his account of creation and related only the last of a whole series of creations: the six-day creation was the rearrangement of the wreckage of previous worlds. Sumner, like Chalmers, was a “liberal.” In the years before Darwin’s theory of evolution, the more open-minded scientists and thinkers tended to opt for the Gap Theory rather than young-earth creationism; it was thus part of the relatively liberal view of reconciliation between Genesis and geology.

Other prominent Gap Theory advocates in the first half of the nineteenth century (Millhauser 1954 and 1959 mentions several of these) included W.D. Coneybeare, author of *Outlines of the Geology of England and Wales* (1822); and Sharon Turner, whose *Sacred History of the World* (1833) interpreted the Gap Theory to children and went through many editions. John Harris, in *The Pre-Adamite Earth* (1846), wrote:

My firm persuasion is that the first verse of Genesis was designed, by the divine Spirit, to announce the absolute origination of the material universe by the Almighty Creator; and that it is so understood in the other parts of holy writ; that, passing by an indefinite interval, the second verse describes the state of our planet immediately prior to the Adamic creation, and that the third verse begins the account of the six days' work. [Quoted in Hitchcock 1851:48]

Although originally promoted as a harmonization between Genesis and geology, the Gap Theory was also accepted by some theologians who denounced geologists as infidels attacking God. Anton Westermeyer, a German, elaborated on Gap Theory theology in *The Old Testament Vindicated from Modern Infidel Objections* (date unknown). He taught that generations of creatures of the original creation succumbed to Satan's corruption and became demons. During the six-day re-creation, God destroyed these demons or drove them from their original habitat; they, in turn, "tried to frustrate God's plan of creation and exert all that remained to them of might and power to hinder or at least to mar the new creation." The creatures of which we have fossils remains were the result: "the horrible and destructive monsters, these caricatures and distortions of creation" (Westermeyer, quoted in A. White 1960:(I)243).

John Pye Smith, head of Homerton Divinity College, produced a remarkable variant of the Gap Theory in his book *On the Relations Between the Holy Scriptures and Some Parts of Geological Science* (1854; originally 1839), which was popularly known as *Scripture and Geology*. Pye Smith, who was geologically knowledgeable, abandoned the idea of a worldwide Deluge. Mankind's sinfulness had prevented the ante-diluvian population from spreading much beyond its origin. "If so much of the earth was overflowed as was occupied by the human race, both the physical and moral ends of that awful visitation were answered," he wrote. Pursuing this line of reasoning further, he tried to reconcile geology with the Bible by proposing that the Creation of Genesis was only regional as well. Six thousand years ago, God laid waste (largely by vulcanism) and flooded a portion of the earth's surface. God then restored and repopulated it as Eden, to be man's abode. The region flooded prior to this re-creation was western Asia; the flood waters drained off into the Caspian Sea and Indian Ocean (quoted in Hitchcock 1851:61-62, 137). The original creation occurred ages before this. Pye Smith's strange scheme was denounced by the literalists, and apparently had few followers, but, according to Millhauser, it was endorsed by scientists such as Whewell, Sedgwick, Sir John Herschel, and Baden Powell.

In 1859, Paton Gloag, a minister, suggested a variant on Pye Smith's variant. He knew that the earth is ancient; he also knew that evolution was impossible. The Genesis creation was "not the original creation—out of nothing, but a new arrangement or remodelling out of previously existing materials." After a lengthy discussion of both Buckland's Gap Theory approach and Pye Smith's modification, Gloag presented his own proposal: that the pre-Adamic destruction was worldwide but only partial—not all life became extinct; some survived into the present creation.

Prior to Darwin the Gap Theory was a relatively liberal doctrine because it injected the immense ages required by geology into the framework of Genesis. After Darwin, it continued to serve as a means of providing these ages, but its flat denial of evolution now rendered it simply an old-earth version of conservative religious opposition to evolution: “liberal” only within the context of creationism.

“If it was Chalmers who first vigorously advocated [the Gap Theory] in modern times,” says Hamm (1954:135), “it was the work of G.H. Pember which canonized it.” Pember’s book *Earth’s Earliest Ages* was published in 1876; since then there have been editions by several publishers up to 1975 at least. Pember cautioned that God has not revealed to humans how to interpret geology; for this we must rely on geologists. He went on to develop theological aspects of the Gap Theory. The Bible does indicate that God did not create earth in chaos; if it had been “without form and void,” this could only have been the result of Satan’s rebellion and the destruction of the former world by God prior to Genesis 1:3. (Chalmers had apparently interpreted this second verse as referring to the original creation, rather than its destruction by God prior to the six-day recreation.) Satan, after he fell, ruled over this earlier pre-Adamic creation.

It is thus clear that the second verse of Genesis describes the earth as a ruin; but there is no hint of the time which elapsed between creation and this ruin. Age after age may have rolled away, and it was probably during their course that the strata of the earth’s crust were gradually developed. Hence we see that geological attacks upon the Scriptures are altogether wide of the mark, are a mere beating of the air. There is room for any length of time between the first and second verses of the Bible. And again; since we have no inspired account of the geological formations, we are at liberty to believe that they were developed just in the order in which we find them. The whole process took place in pre-adamite times, in connection, perhaps, with another race of beings, and, consequently, does not at present concern us. [1975:32]

We see, then, that God created the heavens and the earth perfect and beautiful in their beginning, and that at some subsequent period, how remote we cannot tell, the earth had passed into a state of utter desolation, and was void of all life. Not merely had its fruitful places become a wilderness, and all its cities been broken down; but the very light of its sun had been withdrawn; all the moisture of its atmosphere had sunk upon its surface; and the vast deep, to which God had set bounds that are never transgressed save when wrath has gone forth from Him, had burst those limits; so that the ruined planet, covered above its very mountain tops with the black flood of destruction, was rolling through space in a horror of great darkness. [1975:34]

“But what could have occasioned so terrific a catastrophe?” continues Pember. Why would God have destroyed his own handiwork?

All fossils date from this pre-Adamic world, and fossils “clearly show” that disease, ferocity, death and slaughter were rampant in the former world. This is proof it was a different creation, since the Bible declares that no evil or death entered our world until Adam sinned. So it must have been a gigantic accumulation of sin in the former world which caused its hideous destruction. Pember then reconstructs, from imaginative interpretation of various apocalyptic Bible passages, the drama of Satan’s rebellion and his sin-stained pre-Adamic rule. (Most later Gap supporters cite these same passages.) God created a perfect and beautiful world, fit for habitation and not chaos (Isaiah 45:18). He created Satan as the fairest and wisest of his creatures and placed him in “Eden” (Ezekiel 28:13)—an Eden similar to that in which Adam was later created but even more like the apocalyptic New Jerusalem. Pride corrupted Satan, and he rebelled.

Pember distinguishes between corrupted “angels” who joined Satan’s rebellion, and “demons,” the spirits of the sinful pre-Adamic creatures who walked the earth, and

built cities, in ages past. If there was a pre-Adamite race of creatures or beings, where are their fossils? Pember offers several suggestions: God might have zapped or rotted them; they might have been swallowed up by the earth; or, most likely, they may be entombed at the bottom of the Abyss, where their spirits are still imprisoned. Pember blames “spiritualism” (occultism, psychic beliefs, witchcraft, reincarnation, Eastern and other heathen beliefs) on Satan and these demon spirits.

Alfred Edersheim, a converted Jew best known for his *Life and Times of Jesus the Messiah*, also wrote *The World Before the Flood* (1875), in which he advocated the Gap Theory: “An almost indefinite space of time, and many changes, may therefore have intervened between the creation of heaven and earth, as mentioned in verse 1, and the chaotic state of our earth, as described in verse 2” (quoted in Custance 1977:111).

The Terrible Catastrophe (1885) by Rev. Gottlieb Hasskarl of Philadelphia describes Flood myths from around the world, arguing that these, along with geological evidence, support the biblical account. Hasskarl also presents a Gap Theory interpretation of creation, citing the authority of Kurtz and one H.W. Morris (author of books such as *Science and the Bible*):

When—how far back in the past—“the beginning” was—“God created the heaven and the earth” out of nothing is not stated, neither does the record afford any clue by which this can be ascertained. For this verse stands as an independent sentence, and relates a creative act distinct from and long prior to, the work of the six days. The sacred historian, in passing from the event announced in the first verse to the state of things described in the second, passes over a period of indefinite, and perhaps, incalculable length. [Hasskarl then describes Satan’s Fall during this period.] Of the condition of our planet during that period, what changes or revolutions it underwent, nothing is said; but the second verse describes to us its condition immediately before the Adamic creation, the history of which begins with the third verse. [1885:244-246]

In *Genesis in Harmony with Itself and Science* (1899), George Rapkin said that “we know races existed prior to Adam.” The antediluvian nephilim (“giants”) of Genesis 6:4 were surviving aboriginal pre-Adamites, he argued. Rapkin followed Ussher’s chronology for the six-day (re-)creation and the Flood.

The Gap Theory got a tremendous boost when Cyrus Scofield endorsed it in the notes of his famous *Reference Bible*. Published in 1909 by Oxford, with an expanded edition in 1917, the *Scofield Reference Bible* had an enormous influence in defining and propagating the doctrines of the rising fundamentalist movement. It was Scofield who popularized the doctrine of dispensationalism—the view that God had different covenantal relationships with humankind in each of the clearly demarcated “dispensations” or historical periods. Scofield also stressed the new premillennial view: that Christ would return in person to rule on earth at the beginning of the Millennium. Debated and developed at various Bible conferences around the turn of the century, dispensationalist premillennialism, including the doctrine of the Rapture, became the predominant fundamentalist view, due in large part to Scofield’s popularization, and is still the majority view.

The *Scofield Reference Bible*, perhaps the most widely distributed annotated Bible in the English-speaking world, gave the Gap Theory great prestige. In his note to Genesis 1:1, Scofield states that the “first creative act refers to the dateless past and gives scope for all the geologic ages.” Referring to the third day of the “new creation,” when God commanded earth to “bring forth” vegetation, Scofield asserts that seeds probably

survived the catastrophic judgment of Genesis 1:2 and were allowed to grow again in the newly reconstituted earth:

It was animal life which perished, the traces of which remain as fossils. Relegate fossils to the primitive creation, and no conflict of science with the Genesis cosmogony remains.

Like Pember, Scofield cites Isaiah, Ezekiel, and Jeremiah 4:23-26 to support the idea of this ancient pre-Adamic creation.

In the *New Scofield Reference Bible*, a 1967 revised edition, and in the 1984 *New International Version (NIV) Scofield Bible*, the Gap Theory is somewhat downplayed; the supporting comments are relegated mostly to Isaiah rather than Genesis, where it is mentioned only as a possible interpretation. The older editions remain quite popular with fundamentalists, though.

Clarence Larkin's *Dispensational Truth; or God's Plan and Purpose in the Ages* (1920; originally 1918) was also quite influential in popularizing dispensationalism and belief in Christ's pre-millennial return. Larkin graphically portrayed the dispensations by means of 90 large detailed charts. Creation of the original or pre-Adamite earth was in the "dateless past."

It was not at the beginning of the first day as described in Gen. 1:3-5. The six days' work as described in Gen.1:3-31 was the *restoration of the earth* (not the heavens or starry space), to its original condition before it was made "formless and void," and submerged in water and darkness. [1920:21]

The original world was corrupted by sin, and God destroyed it by the awful Flood catastrophe described in 2 Peter: "the world that then was, being overflowed with water, perished."

Watchman Nee, the Chinese theologian, argued for the Gap Theory; his *Mystery of Creation* (1981) is a very readable summary of Pember's classic interpretation, who he follows closely; he also cites Chalmers. Nee also states that 2 Peter 3:5-7 refers to the pre-Adamic world, its destruction by flood, and the present creation. Strict young-earth creationists insist that a straightforward reading of this passage clearly shows this to be Noah's Flood, not some pre-Adamic cataclysm. Indeed, John Whitcomb, Morris's Genesis Flood co-author, entitled his sequel to that work *The World That Perished*, quoting 2 Peter 3:6.³⁵

Giorgio Bartoli, the Italian geologist, chemist, and mine director, presented the Gap Theory (which he called "restitutionism" or "reconstructionism") in *The Biblical Story of Creation* (1926).

³⁵ This chapter of 2 Peter is a rich source of "proofs" for various and conflicting schools of creationism. The verses just before those quoted by Nee refer to "scoffers" during the last days who refuse to believe that God ever destroyed the world or could do so in the future; many creationists maintain that it describes uniformitarian evolutionists. (This makes little sense, however. The "scoffers" oppose biblical historicity with its prophesied Judgment and End of Time. Though they seem to acknowledge a creation, they deny that the world changes—hardly an evolutionist position. The verse immediately following, which says that "one day is with the Lord as a thousand years," is, along with Psalm 90:4, the best available scriptural support for Day-Age creationism. And the coming of the Lord "as a thief in the night," two verses later, followed by the destruction of the earth, is cited by pre-tribulation premillennialists as support for the secret Rapture to heaven of the faithful.

Between the first creation, indicated by the first verse, and the description of chaos of the second verse, there occurred a cosmic catastrophe, an appalling cataclysm of worlds, whereby not only our earth was broken up into fragments, but even the solar system was displaced... [1926:55]

Though Bartoli stresses his scientific credentials and presents archeological evidence (his book is subtitle “In the Light of the Recently Discovered Babylonian Documents,” which he claims support the Gap Theory), he spends much time on theological arguments, describing in detail the creation of angels, the rebellion of Satan and his fallen angels, and their corruption of the pre-Adamic world.

Clarence Benson argued for the Gap Theory in *The Earth—The Theatre of the Universe* (1929). A passing star fragmented the planet of which asteroids are remnants; this catastrophe was associated with Satan’s Fall. Benson also, however, strongly endorsed Price’s Flood Geology. Gerald Winrod, founder of the Defenders of the Christian Faith, included the Gap Theory in *Science, Christ and the Bible* (1929). Citing alleged instances of out-of-order fossils, Winrod declared that “When the theory of evolution hits the rocks of geology, it goes to pieces.”

Harry Rimmer, the flamboyant Bible-science proselytizer, was the major Gap Theory advocate during the time of the Scopes Trial and for some years afterwards. As already noted, Rimmer debated William B. Riley, another leading anti-evolutionist of the period, on Gap Theory versus Day-Age creationism (Riley and Rimmer 1929), and he invoked the Gap Theory to refute the accusation leveled in the “lawsuit against the Bible” (Rimmer 1956) that science had proved the Bible wrong by showing the earth is immensely old. Although he campaigned vigorously for the Gap Theory, Rimmer also paid deference to George McCready Price’s Flood Geology (1936:238-242), apparently not seeing any contradiction between explaining geology and paleontology in terms of Noah’s Flood and also in terms of a pre-Adamic creation. Rimmer tried to maintain a literal interpretation of Noah’s Flood, as well as of Joshua’s Long Day, Jonah and the Whale, and other biblical stories, providing “scientific” explanations for them.

DAY-AGE THEORY

The Day-Age Theory of creationism was the Gap Theory’s chief rival during the nineteenth century and much of this century—until young-earth creationism became popular again. It had various precedents in earlier centuries.

The fourth-century theologian St. Augustine apparently maintained that creation was *ex nihilo* (not then the accepted view), but also argued that the process of creation was progressive, unfolding over time. (For this reason, strict creationists sometimes accuse him of being a protoevolutionist.) In any case, Augustine held that the ‘days’ of creation were not the same as our literal days. “It is more than probable that the seven days of Genesis were entirely different in their duration from those which now mark the succession of time...” (Augustine, quoted in H. Clark 1977:40). Augustine denied that we could assign any definite period (i.e. a thousand years, a popular interpretation) to the creation days. He viewed such scriptural statements not as literal facts, but as allegorical truth, and inspired the medieval tradition of allegorical interpretation of the Bible.

This medieval attitude relegated inquiry about the natural world—science—to a strictly subordinate position under theology, with its search for allegorical meaning behind natural phenomena, which were but symbols capable of revealing biblical truth,

but it did at least welcome all such study of nature, even if only as a means of providing allegories for theological interpretation. “We must be on our guard against giving interpretations which are hazardous or opposed to science, and so exposing the word of God to ridicule of unbelievers,” Augustine said, in warning against literal interpretations which could be refuted by empirical evidence. According to Davis Young (1982:23), Augustine’s non-literal interpretation of Genesis 1:1-2 as a transcending of the temporal scheme of the Six Day creation served as a precedent for the Gap Theory, though Augustine thought that the conditions described in these opening verses did not occur in actual time. (It should also be noted that Augustine’s views on creation were not altogether clear or consistent. He is also claimed by the progressive creationists.)

Buffon, the eighteenth-century French naturalist who anticipated evolution in many respects (but not natural selection), divided the earth’s history into seven epochs, each lasting from 3,000 to 35,000 years. He explained that these epochs corresponded to the seven ‘days’ of creation—but perhaps only in a vain attempt to protect himself against the anger of biblical literalists in the Church and the Sorbonne. Earlier, Thomas Burnet’s *Sacred Theory of the Earth* (1681) was similarly criticized by literalists, and he attempted to assuage them later by reconciling his account more directly with the Genesis narrative, apparently also suggesting a Day-Age approach. Jean Andre Deluc, a Swiss Calvinist who supported the Neptunist interpretation in opposition to Hutton’s uniformitarianism, argued that the water-formed strata coincided with the six ‘days’ of creation, which he interpreted as long periods.

Day-Age schemes became popular in France and elsewhere in continental Europe. The catastrophists often adopted something like a Day-Age approach in trying to reconcile their successive catastrophes and introduction of new life-forms with the Genesis account. In the beginning of the nineteenth century, James Parkinson wrote a two-volume book *Organic Remains of a Former World* (1804-1808) which has been described as a “synthesis of Cuvierianism and Moses in which the days of Genesis were treated as vast periods of time” (D. Young 1982:50). Parkinson described in detail the formation of coal and petroleum deposits as a result of the Flood.

But the Day-Age Theory did not rival the Gap Theory in England until it was championed by Hugh Miller in the 1840s. Millhauser suggests that the chief British objection to the Day-Age Theory in the first half of the century was that it originated in revolutionary atheistic France. Gappers also criticized the Day-Age Theory for sacrificing the obvious literal interpretation of the ‘days’ of creation. Day-Agers replied that the Hebrew word for ‘day’ in Genesis can mean an indefinite period, or age, as well as a literal day; also, that while the Gap Theory claimed to preserve the literal, recent six-day account, it did so only by postulating a tremendous gap “between the lines” of Genesis, a completely ad-hoc gap for which there is no real biblical warrant.

Hugh Miller was a remarkable figure, a poor Scottish stone-mason who became a popular author and eloquent advocate of Thomas Chalmers’s Free Church of Scotland, then editor of the Free Church newspaper *The Witness*. While laboring in the quarries as a stone-mason, he taught himself geology, and became a widely-read popularizer of geology, highly respected by the leading professional geologists. Miller’s first geology book, *The Old Red Sandstone* (1841), based on articles from *The Witness*, was enormously popular (it went through twenty editions), and helped fuel the Victorian passion for amateur geologizing in the natural theology tradition. The “Old Red

Sandstone” is a mid-Paleozoic (Devonian) formation which Miller first quarried, then studied as a geologist. Miller’s book, a vivid depiction of its fossils (mostly fish and marine plants), was praised by Agassiz and Buckland. Miller piously and persuasively argued for a reconciliation of geology and Genesis.

Miller’s next book, *The Footprints of the Creator; or, The Asterolepis of Stromness* (1882; orig. 1847), went through seventeen editions; the later editions include a long *Memoir of Miller* by Agassiz. The *Asterolepis* is a mid-Paleozoic fish, a kind of Coelacanth, which Miller declared was a refutation of the “development hypothesis” of Lamarck and of Robert Chambers’ 1844 *Vestiges of the Natural History of Creation*.³⁶ Miller argued that each of the geological periods so eloquently attested to by study of geological formations showed fossils of increasing development, but that within each period the fossils clearly indicated degeneration—not continual growth or progress. The *Asterolepis* was the oldest—and largest—fish of its type. Miller, besides describing this and other fossils with unmatched charm, also devoted considerable space to attacks on the “development hypothesis”; arguing, i.e., that land plants did not arise from marine plants, and that the fossil record shows degeneration of forms, followed by creations of new forms for each successive geological age. Miller said the development hypothesis was not itself atheistic, but that it did decrease devoutness. He admitted that his underlying objection to evolution is belief in the immortality of the soul: if man evolved from animals, he argued, then either other animals must also have immortal souls, or else we do not.

Miller further emphasized the progressive nature of the geological ages in his last book, *The Testimony of the Rocks; or, Geology in Its Bearings on the Two Theologies, Natural and Revealed* (1857). (The book was published posthumously. Miller, who suffered from paroxysms of night terror, shot himself in a morbid fit, described in the “Memorials” added to his book [1857:11-13].) As already noted, Miller praised Chalmers’ work in harmonizing Genesis with geology. He himself, he mentions, had formerly believed in Gap Theory creationism as a reconciliation of the two, following Chambers and Buckland. But, he continued, the increasing paleontological knowledge gained since their time, which he describes and explains with his customary lucidity, had now rendered Gap Theory creationism scientifically inadequate. There was simply no evidence in the geological record of such a major discontinuity and recreation; rather, it showed a succession of long ages, each with its characteristic flora and fauna, showing a general progressive development from each age to the next. To replace the Gap Theory, Miller proposed Day-Age creationism as a scientifically viable means of reconciling the “two theologies.” In Miller’s scheme (1857:195-196), the first ‘day’ was the Precambrian; the second ‘day’ was the Silurian and Old Red Sandstone (Devonian) of the mid-Paleozoic Era; the third ‘day’ was the Carboniferous Period (vegetation); the fourth ‘day’ the Permian and Triassic; the fifth, the Oolitic (Jurassic) and Cretaceous Periods of

³⁶ Chambers wrote *Vestiges* anonymously. Ironically, Miller had contributed poetry and articles on Highland folklore to his popular *Chambers’s Edinburgh Journal* (Gillispie 1951:172). Chambers, like Miller, was a poor, self-taught Scotsman, who went on to become a famous author, editor and publisher; both he and Miller strove to aid the poor and working class with useful information in order to improve their lives, and promoted popular understanding of the sciences both for practical as well as moral and religious reasons.

the Mesozoic Era (sea monsters—dinosaurs—and birds); the sixth, the Tertiary, or Cenozoic Era (mammals, and finally, man).

Convinced of the geological ages and succession of life-forms, Miller predicted that the literalist young-earth creationism of the “anti-geologists” (discussed previously) would become as obsolete as the Ptolemaic cosmology, and “be regarded as a sort of curious fossils, very monstrous and bizarre, and altogether of an extinct type” (1857:426-427). He had no doubt that the history of earth:

throughout the long geologic ages,—its strange story of successive creations, each placed in advance of that which had gone before, and its succeeding organisms, vegetable and animal, ranged according to their appearance in time, on principles which our profounder students of natural science have but of late determined,—will be found in an equal degree more worthy of its Divine Author than that which would huddle the whole into a few literal days, and convert the incalculably ancient universe which we inhabit into a hastily run-up erection of yesterday. [1857:428]

Sir John William Dawson, the eminent Canadian geologist and paleontologist of the second half of the nineteenth century, also advocated Day-Age creationism. Educated in Scotland, he was brought up in a fundamentalist atmosphere (Presbyterian), and was also trained in theology and Bible languages. Besides his geological works, he wrote many religious articles and a dozen popular books on the relationship of science to religion (T. Clark 1980:608). In *The Story of the Earth and Man* (1887; orig. 1872), he described the geological ages and their characteristic fossils and life-forms with state-of-the-art geological expertise, but all the while affirming their correspondence with Genesis. Dawson refuted evolution in the final two chapters on “Primitive Man Considered with Reference to Modern Theories as to His Origin.”

This evolutionist philosophy is one of the strangest phenomena of humanity... [T]hat in our day a system destitute of any shadow of proof, and supported merely by vague analogies and figures of speech, and by the arbitrary and artificial coherence of its parts, should be accepted as a philosophy, and should find able adherents to string upon its thread of hypotheses our vast and weighty stores of knowledge, is surpassingly strange. [1887:317]

Emphasizing the gaps in the fossil record between various major groups, Dawson concluded: “We see that evolution as an hypothesis has no basis in experience or in scientific fact, and that its imagined series of transmutations has breaks which cannot be filled” (1887:339). Evolutionists thus either suffer a “strange mental hallucination,” or else “the higher spiritual nature has been wholly quenched within them” (1887:396). Declaring that “religion must go hand in hand with all true and honest science,” he ended by saying that such a religion “would speedily consign evolution to the tomb which has already received so many superstitions and false philosophies” (1887:397).

Dawson continued to advocate this Day-Age approach in later works. In *The Origin of the World According to Revelation and Science* (1893; orig. 1877), he stressed the many parallels between Genesis and geology. Both testify to a beginning; both exhibit the progressive character of creation; and they can be seen to agree, when “properly understood,” as to order of this progression: ocean preceding dry land, with hints of a state of “igneous fluidity” preceding this, and man as culmination of creation (quoted in Ramm 1954:147-148).

Louis Agassiz, the great Swiss-American naturalist at Harvard who studied under Cuvier, defended a form of Day-Age creationism. So did Benjamin Silliman, the

distinguished Yale geologist in the first half of the nineteenth century. So too did his student and renowned successor at Yale, James Dwight Dana, in “Science and the Bible” (1856-57). At Princeton, Arnold Guyot, the Swiss-born geologist and geographer, advocated Day-Age creationism in *Creation; or The Biblical Cosmology in the Light of Modern Science* (1884).

Alexander Winchell was an influential geologist and paleontologist who did much to popularize geology in this country and help organize it into a scientific discipline. He held important posts at the University of Michigan and Syracuse University. Later, in 1878, he was ousted by fundamentalist Southern Methodists from Vanderbilt University “for holding questionable views on Genesis”: he refuted Flood Geology and emphasized the earth’s immense age, the many changes it has undergone by various agencies, and the succession and extinction of life-forms. (Winchell returned to the University of Michigan after this notorious action.) In his *Sketches of Creation: A Popular View of Some of the Grand Conclusions of the Sciences in Reference to the History of Matter and of Life* (1870), he takes the reader on a tour of the geological ages. He describes the four basic animal plans (radial, mollusc, articulated, and vertebrate), and the succession of the various life-forms as the manifestations of the “dominant ideas” of each age: a “series of divine conceptions.” “They constitute a distinct succession of ideas recognizable in a fixed order as the mind glances over the series of organic beings” (1870:324).

Though Winchell emphasized the evolution of the solar system and of earth, and the progressive development of life-forms, he denied naturalistic evolution, insisting that this long development, which he interpreted in terms of Day-Age creationism, was God’s preordained Plan. Winchell’s approach to science and the Bible was concordistic throughout. “Science interpreted is theology,” he wrote (1870:vii); “Science prosecuted to its conclusions leads to God.” Though he accepted some evolution—he later endorsed Edward Cope’s quasi-Lamarckian Christian evolutionism in his *Reconciliation of Science and Religion* (1877)—he consistently maintained that all development demonstrated the workings of supernatural intelligence and planning. An earlier (1858) book was titled *Creation the Work of One Intelligence*.

We have seen the procession of living forms pass by, and discovered them marshaled by a single leading Intelligence. We have witnessed the progressive development of the physical world—its successive adaptations to its successive populations, and its completion and special preparation for the occupancy of man, and have learned that the whole creation is the product of one eternal, intelligent master purpose—the coherent result of ONE MIND. [1870:16]

Nature “anticipated the coming of man” (1870:336): the earth was gradually prepared for man, who was the final product of its divinely-guided evolution.

In a chapter on “Primeval Man,” Winchell argued that man had first appeared at the end of the Ice Age. Man’s embryological development recapitulates the “dominant ideas” of previous life-forms, but this proves—contra Chambers’ Vestiges—God’s overseeing Intelligence (1870:324-325). “Primeval man...was a barbarian, but he was by no means the stepping-stone between the apes and modern man” (1870:363). In *Preadamites, or a Demonstration of the Existence of Man Before Adam* (1880), Winchell presents “an anthropological account of the evolution of the human family without, in his view, contravening the Scriptures” (Gillispie, ed. 1980: 439).

Arthur Custance (1977:238-239) cites two other, little-known early works which suppose a Day-Age view and the existence of pre-Adamite human-like beings: *Pre-*

Adamite Man: Or the Story of Our Planet and Its Inhabitants Told by Scripture and Science (1862), by Mrs. George J.C. Duncan, and *Primeval Man Unveiled: Or the Anthropology of the Bible* (1871), probably written by James Gall.

Arthur Pierson argued that the six days of creation were really “six periods of vast length” in his chapter “Scientific Accuracy of the Bible” in *Many Infallible Proofs* (1886). He asserted that the order of creation is exactly the same as shown in the fossil record. “The correspondence between the Mosaic account of creation and the most advanced discoveries of science proves that only He who built the world built the Book” (1886:120).

In *Organic Evolution Reconsidered* (1897), Alfred Fairhurst, a professor of natural science at Kentucky University, disputed Cope’s views on evolution in a long critical review, and affirmed divine fiat creation and miracles as acceptable scientific explanation. He supported Day-Age creationism, but argued that detailed comparison of Genesis and geology is useless, as the purpose of the Bible is moral, not scientific, and it employs phenomenological language. He accepted standard geological chronology, but pointed out that species appeared as if by substitution rather than by transformation. “The doctrine of evolution is not science,” he asserted (1897:3; this “Preface” is dated 1911). He attacked evolution for undermining belief: “My object...is to promote the belief in Theism...” (1897:11).

George Frederick Wright, the geologist and Congregationalist minister who was “professor of the harmony of science and revelation” at Oberlin, was an advocate of “Christian Darwinism.” He sought to mediate between secular evolution and biblical literalism, allowing for limited evolution and interpreting Genesis in terms of a Day-Age scheme. In *Scientific Aspects of Christian Evidences* (1898), he argued that natural selection cannot operate on chance: there must be a “Contriver” for Darwinian evolution to work—there must be purpose behind evolution. Wright was basically a theistic evolutionist, like Asa Gray; in fact Wright collaborated with Gray, and persuaded him to write his *Darwiniana* (Numbers 1988:626). He maintained that man was a special creation, however.

Though he was the “foremost champion of a Christian Darwinist theology” (according to the *Dictionary of Scientific Biography*), Wright came to be considered a fundamentalist after the turn of the century. He became the editor of *Bibliotheca Sacra*, which aligned itself with the emerging fundamentalist movement, and he wrote about evolution for the famous booklet series *The Fundamentals*. He also wrote an Introduction to Alexander Patterson’s *The Other Side of Evolution* (1912; orig. 1903), a book which accused evolution of being false and unscientific, and “violently opposed” to the Bible and Christian faith. Though he died some years before the Scopes Trial, he was invoked during the trial by William Jennings Bryan: when challenged by Darrow to name a scientist who rejected evolution, Wright was the only scientist Bryan could think of, besides G.M. Price (who Darrow contemptuously dismissed as a “mountebank and a pretender”). Bryan recalled that Wright thought that man appeared after the Ice Age, but that the earth was older. This exchange occurred during the famous cross-examination of Bryan by Darrow as “expert witness” on the Bible (National Book 1925:297-299). Darrow then demanded that Bryan say how old he thought the earth was, asking if he agreed with Ussher’s date. (Darrow, apparently unfamiliar with the Gap Theory, thought that *Scofield’s Bible* endorsed Ussher’s date as the age of the earth, rather than of the re-

creation and of man, and Bryan did not correct him). Bryan then said that he did not believe that the six days of creation were literal twenty-four hour days; in this, of course, he was following Day-Age creationists such as Wright.

Wright's increasing involvement with fundamentalism illustrates the problematic nature of his position regarding creationism and evolution. He certainly never became a young-earth literalist, but many of the fundamentalist leaders of his time were not either. Did he gradually abandon his "Christian Darwinism"? Marsden thinks that Wright did not really change much; rather, it was the context of fundamentalism that changed during this period, so that Wright's mediating, concordistic view, which was considered liberal at first, came to be considered conservative after the turn of the century. Numbers (1988), though, argues that there was indeed a significant shift in Wright's attitudes, though his later views regarding evolution were often ambiguous and contradictory. Wright was bothered by all-encompassing evolutionistic speculations, purely naturalistic and non-teleological, which left no room for the Creator, and apparently saw in fundamentalism a necessary corrective for dangerous unbelief. He became increasingly adamant about proving that the Bible did not contradict science, as indicated by his Oberlin professorship in the "harmony of science and revelation," and a 1906 book, *Scientific Confirmations of Old Testament History*.

In *The Other Side of Evolution*, Patterson quotes from a 1900 *Bibliotheca Sacra* article by Wright, in which he says of evolution: "It is the fad of the present, which is making such havoc and confusion in the thought of the age, leading so many into intellectual poisons..." (1903:viii). In his own Introduction to that book, Wright said: "The doctrine of Evolution as it is now becoming current in popular literature is one-tenth bad Science and nine-tenths bad Philosophy" (1903:xix).

Wright's contribution to The Fundamentals was called "The Passing of Evolution" (n.d.; ca.1911). Wright explained that "evolution" had different meanings, and some legitimate usages.

The widely current doctrine of evolution which we are now compelled to combat is one which practically eliminates God from the whole creative process and relegates mankind to the tender mercies of a mechanical universe the wheels of whose machinery are left to move on without any immediate Divine direction. [1911:5]

But, said Wright, Darwin himself never claimed as much, though many of his less responsible followers have. Darwin only argued that varieties can evolve into different species, which Wright accepts. Wright objected to the claims that all species share a common ancestor which evolved from non-living matter, and that there has been no supernatural influence, arguing that the simultaneous evolution of coordinated traits requires supernatural guidance. "By no stretch of legitimate reasoning can Darwinism be made to exclude design," he claimed (1911:10). (Wright believed that Darwin thought that God created several different life-forms, a possibility alluded to in the final sentence of the *Origin*.) He said that Darwin erred in assigning too great an age for the earth, and in his doctrine of gradual change. Wright allowed for an earth millions of years old, but not the "unlimited time required by Darwin's theory." He concludes:

Christianity, being a religion of fact and history, is a free-born son in the family of the inductive sciences, and is not specially hampered by the paradoxes inevitably connected with all attempts to give expression to ultimate conceptions of truth. The field is now as free as it has ever been to those who are content to act

upon such positive evidence of the truth of Christianity as the Creator has been pleased to afford them. The evidence for evolution, even in its milder form, does not begin to be as strong as that for the revelation of God in the Bible. [1911:20]

In a book he wrote about the same time, *Origin and Antiquity of Man* (1912), Wright admitted a genetic connection—a descent relationship—between man and animals, but denied that man evolved from existing primates. He argued that “primitive” man was actually highly developed, and discussed fossil artifacts demonstrating the advanced status of early man. These include the Nampa figurine and the Calaveras skull, which even then were suspected of being fakes (Wright noted that their authenticity was doubted by some, but described these skeptics as biased). Wright maintained that man appeared after the Ice Age, which he considered to be a single, relatively recent period of advancing and receding glaciers: a view he had presented in an earlier scientific book, *The Ice Age in North America and Its Bearing Upon the Antiquity of Man* (1889), but which was becoming obsolete. “While the antiquity of man in the world cannot be less than 10,000 years, it need not be more than 15,000. Eight thousand years of prehistoric time is ample to account for all the known facts relating to his development.” Wright stressed the differences between man and ape, and stated that man’s mental and moral capacity comes from God, not from evolution. Archeology, he said, showed that life is probably 24 million years old, but not more than 50 million years old. He disputed uniformitarianism, arguing instead for “paroxysmal” evolution, in which developmental changes of organisms result from “paroxysms of nature” rather than gradual evolution. Insisting on the “foresight” of creation, Wright said that divine intervention was necessary for these changes.

Frederick Bettex advocated Day-Age creationism in *Science and Christianity* (1901), his strongly anti-evolutionist Bible-science treatise. He explains that the Genesis creation account is in “entire conformity with science.” But, “we are clearly given to understand that God is not restricted to any particular length of day; the days [of creation] are simply epochs of light interrupted by periods of darkness; the Bible says nothing as to their duration...” (1901:159-160). Bettex describes these epochs of alternating periods of light and darkness: the original molten earth, cloud canopies, volcanic action, and other scientific phenomena.

A.W. McCann argued for Day-Age creationism in *God or Gorilla* (1922), and demonstrated the correspondence of the Genesis record of creation with the geological and paleontological ages. Alexander Hardie endorsed both Day-Age creationism and the Gap Theory in his savage anti-evolution polemic *Evolution: Is It Philosophical, Scientific or Scriptural?* (1924). The first two verses “describe events and conditions anterior to the work of the seven periods occupied in transforming chaos into cosmos” (1924:201). Also, the creation ‘days’ were long periods, and thus can accommodate the “vast aeons of duration during which our earth was being transformed from chaos to cosmos” (1924:203). Hardie then describes the geophysical and biological transformations of the earth during each of these creation ‘days.’

REVELATORY THEORY

There were other theories of creationism, which were used either in conjunction with or as alternatives to the Day-Age and Gap Theories. Hugh Miller, who popularized

Day-Age concordism, also advocated, in *Testimony of the Rocks*, what is usually called the “Revelatory Theory” in his chapter “The Mosaic Vision of Creation.” God presented to Moses successive visions of each ‘day’ (age) of creation. These visions or visual revelations of creation were naturally described in phenomenological or “optical” language, the language of “appearances” rather than in absolute or scientific terms. Thus, the sun is described as being “created” on the fourth day: it had obviously been in existence the previous ages, but would not have been fully visible to an ordinary observer on earth—or to Moses as he received the visions of creation—because the planet was covered with thick clouds and vapors until then. Moses, who the Bible says received many other visions from God:

saw also by vision the pattern of those successive pre-Adamic creations, animal and vegetable, through which our world was fitted up as a place of human habitation. The reason why the drama of creation has been optically described seems to be, that it was in reality visionally revealed. [1857:190]

Miller goes on to explain that Moses’ verbal descriptions of these visions in Genesis, though not always corresponding to modern scientific knowledge, was well suited to the audience of his day, founded as it was “on the apparent evidence of the senses” rather than on future scientific discoveries.

In his presentation of the Revelatory Theory of creationism, Miller relies heavily on a book by Johann Heinrich Kurtz, *The Bible and Astronomy* (1857; originally 1842; Miller uses the second German edition, 1849), which he praises and quotes from extensively. Kurtz, a theology professor at the University of Dorpat, presented a classic version of Gap Theory creationism, elaborating on the fall of Lucifer and his angels and his pre-Adamic reign. Kurtz was the first to interpret the second verse of Genesis as referring to God’s later destruction of this Satan-ruled world prior to His six-day re-creation (D. Young 1982:56; previous Gappers assumed it, like the first verse, referred to the original state)—a theme elaborated on by Pember in 1876. Kurtz also introduced the Revelatory Theory of God revealing to Moses (or possible an earlier seer) the history of creation in a series of visions. He explained that these visions of the “prophetic days” of creation are analogous to other visions seen by biblical seers and prophets, but concern the past rather than the future: “prophecy described backwards.” “Before the eye of the seer, scene after scene is unfolded, until at length, in the seven of them, the course of creation, in its main *momenta*, has been fully represented” (quoted in Miller 1857:182). These “prophetic days” were not necessarily revealed in seven successive days; they refer to the days of creation itself, which were ‘real’ days, but—as prophetic days—may have been of unusual and indeterminate length.

J.M. Woodman, the teacher of natural, mental and moral philosophy at Chico Academy in California who promoted the old Neptunist (Flood) Theory, also endorsed the Revelatory Theory in his *God in Nature and Revelation* (1875) in conjunction with Day-Age creationism. Arnold Guyot, the Princeton University professor of geology and geography, presented it combined with Day-Age creationism in *Creation; or The Biblical Cosmology in the Light of Modern Science* (1884):

The same divine hand which lifted for Daniel and Isaiah the veil which covered the tableaux of the time to come, unveiled to the eyes of the author of Genesis by a series of graphic visions and pictures the earliest ages of the creation. Thus Moses was the prophet of the past as Daniel and Isaiah and many others were the prophets of the future.

P.J. Wiseman, a British air commodore, presented a version of the Revelatory Theory involving written rather than visual revelations in *Creation Revealed in Six Days* (1949). The creation narrative was revealed by God to man in six literal consecutive days. The actual process of creation did not occur in six days, only God's revelation of these events to man.

Consequently this narrative is a series of statements to man about what God had done in the ages past. It is a record of the six days occupied by God in revealing to man the story of creation. We are told what God said... [1949:40]

God's words were probably written on six tablets. Wiseman points out that Babylonian creation accounts are generally inscribed on six tablets, and uses archeological evidence to support his theory. He argues that study of the literary structure of Genesis—the parallel arrangement of the two three-day sequences, and comparison of the Genesis closing formula with the colophons of Mesopotamian tablet series—supports this interpretation. Comparison with the Babylonian account indicates that Genesis is not a variant, but the original source, claims Wiseman. The date of creation is unknown, and Wiseman argues that his Revelatory Theory avoids both the scientific difficulties of youngearth creation and the unbiblical nature of the evolutionary scheme.

FRAMEWORK THEORY

The Framework, or Literary, Theory of creationism acknowledges the literary structure—the literary “framework”—of Genesis which Wiseman interpreted in terms of his literary Revelatory Theory, and recognizes that Genesis employs literary and poetic devices. Thus, in this view, the events or processes of the six ‘days’ of creation are “topical” rather than strictly chronological, and they may overlap.

William E. Gladstone, the British Prime Minister, attempted a reconciliation of Genesis with science in his book *The Impregnable Rock of Holy Scripture* (1896). He dismissed recent literal six-day creationism as inadequate, and also rejected Day-Age creationism (1896:60), arguing instead for a Framework or Literary interpretation. Gladstone stressed that the Bible employed phenomenological language, describing events in terms comprehensible to its “relators” and its audience. The creation ‘days’ are “more properly to be described as chapters in the history of creation,” like chapters in a book about important topics: topics which may overlap with each other chronologically (1896:61-63). Thus, though some of the descriptions may be “literally untrue,” they serve to convey greater truth than would more factual descriptions: moral and spiritual as well as physical truths. Subdividing creation into periods of time called ‘days,’ for instance, conveys the truth of the general series of events in terms which would be understandable to contemporary audiences, though it is not literally true. Similarly, the separation of “water” from “land” refers to the condensation of nebulous matter into planets, as scientifically described by the nebular hypothesis.

Gladstone goes on to discuss the reconciliation of various events in the biblical account with modern scientific evidence and theories. He cites many scientific sources, relying heavily on J.W. Dawson, and also quoting from Dana's “Creation” and Guyot's *Creation*. He refutes at length Huxley's attacks on the scientific truth of the Bible. The

biblical account does prove to be inspired by the Author of Creation, and must therefore be Divine Revelation, declares Galdstone. He also discusses recent discoveries of Mesopotamian Creation and Flood stories, which, like Wiseman, he argues are flawed derivatives of the original biblical versions.

David Holbrook emphasized the phenomenological nature of biblical language in *The Panorama of Creation as Presented in Genesis Considered in Relation with the Autographic Record as Deciphered by Scientists* (1908). The Genesis account, he argues, pictorially portrays a panorama of creation in six divisions, like a series of paintings. The first chapter is literature rather than science, he states, though he also insists that the Bible harmonizes perfectly with science. Holbrook praises the Day-Age harmonizations of Guyot and Dana, J.W. Dawson and Winchell. He also cites approvingly the Revelatory and Literary theories of Miller and Gladstone, which seek to avoid the chronological difficulties of strict Day-Age creationism. Holbrook wrote that his interpretation, which combines the Revelatory and Framework theories, follows the views expressed by one Willis J. Beecher.

Edward Young (1964:44-47) discusses the Framework theory advocated by Arie Noordtzij of the University of Utrecht in his book *God's Word and the Testimony of the Ages* (1924, in Dutch). "That the six days do not have to do with the course of a natural process may be seen, thinks Noordtzij, from the manner in which the writer groups his material." Such a recognition of the significance of the literary structure of Genesis carries with it, of course, the danger of concluding that the Genesis account is purely figurative or literary, and not a description of "real" events at all. Noordtzij was accused of this, and the Framework Theory is very similar in important respects to non-creationist analyses of Genesis as literature and myth.

PROGRESSIVE CREATIONISM

Another old-earth theory of creationism, which can border on or overlap with non-creationist, evolutionist explanation is Progressive Creationism. Progressive Creationism is more loosely defined than other types. More conservative forms of Progressive Creationism may verge on Day-Age creationism, and more liberal interpretations can become virtually identical with forms of theistic evolution. It involves the belief that God intervened directly at various times over the ages, either creating new species *de novo* or modifying existing ones. The number of these divine interventions varies, according to interpretation, from six (as in standard Day-Age creationism) up to almost constant supernatural supervision of phylogenetic progress.

Progressive Creationism has become more popular in recent decades amongst old-earthers as the difficulties in reconciling the traditional Day-Age and Gap theories with science have become more apparent. Bernard Ramm, a theology professor at American Baptist Seminary of the West with a philosophy Ph.D from USC, is a leading exponent of Progressive Creationism. His 1954 book *The Christian View of Science and Scripture* is an excellent reference source for various interpretations regarding the relation of science to the Bible, and discusses the various theories of creationism and their proponents. Ramm urges a return to the tradition of late nineteenth-century conservative evangelical scholars who diligently and carefully tried to harmonize science with scripture: he praises J.W. Dawson, Pye Smith, Miller, Gray, Dana, Rendle-Short, Fleming, and Bettex in this

regard. Ramm laments the abandonment of science to materialists who ignore the Bible, but he also criticizes “hyper-orthodox” interpretations (such as strict recent creationism) as naive, unscientific, and selfdefeating. The Bible is neither full of scientific error, he explains, nor filled with modern scientific predictions and theories. Ramm, after he wrote this book, led the American Scientific Affiliation resistance to the rising young-earth creationism and Flood Geology movement led by Henry Morris. In this book (which is dedicated to Alton Everest of the Moody Institute of Science and the ASA) he criticizes Morris’s Flood Geology predecessors: G.M. Price, Harold Clark, Byron Nelson and others.

Ramm argues that the language of the Bible is “phenomenal,” and also “pre-scientific” (though not antiscientific): it uses popular (not technical) terminology, expressed in terms of the cultures of the time, and deals with the appearances of things and events rather than with any scientific theorizing. The creation ‘days,’ he said, were “pictorial-revelatory,” not literal: they were revealed to Moses in six visions or in six days. Ramm describes his own view as “progressive creationism,” by which he means that God created the major types by direct supernatural fiat, but that this was accomplished over long ages. He insists that, if understood properly, the Bible cannot be contradicted by science: “If the Author of Nature and Scripture are the same God, then the two books of God must eventually recite the same story” (1954:25). He denounces “hyper-orthodox” young-earth Flood Geology creationism as scientifically ignorant; worse, it makes people suppose that good science opposes the Bible. Ramm insists upon creationism, though it must be creationism which properly harmonizes with science: “Any weakening, enervating, softening, hedging or compromising of the creationism of the Bible is not true to the Bible, and already is a crack in the wall which unbelief will smash open into a huge crevice” (1954:56).

Robert C. Newman and Herman Eckelmann advocate a form of Progressive Creationism in *Genesis One and the Origin of the Earth* (1977). Newman, who has an astrophysics Ph.D. from Cornell University, is a New Testament professor at Biblical Theological Seminary and a leader of the Interdisciplinary Biblical Research Institute in Hatfield, Pennsylvania; he is also a co-author of later editions of Peter Stoner’s *Science Speaks*. Eckelmann is a pastor and a researcher at the Cornell Radiophysics and Space Center. They dedicate their book, interestingly, to Frank Drake, Thomas Gold, Carl Sagan, and other Cornell evolutionist astronomers. The first part of the book consists of scientific evidence for the age of the earth and is a strong refutation of young-earth creationism. In the second part the authors present theological arguments for old-earth creationism, correlating Genesis with scientific theories of the earth’s origin in a modified Day-Age approach. Their interpretation is different from standard Day-Age creationism, though, in that they do not equate the Genesis days with the corresponding ages. They advocate instead an “intermittent day” theory of progressive creationism. The Genesis days are real, but not successive: they are separated by long ages, one occurring each age; the seventh is yet to come. In their scheme, the first day intervenes after the planets form from nebular clouds after the Big Bang. The second day follows out-gassing of the ocean and atmosphere from the hot primitive earth. The third day occurs after the formation of the continents and the appearance of land vegetation. The fourth day occurred after the atmosphere became altered and cleared by photosynthetic organisms.

Newman and Eckelmann include in their book a reprint of William Henry Green's 1890 "Primeval Chronology," an influential article which argued that there were genealogical gaps in Genesis and thus that events such as Creation and the Flood can not be precisely dated.

Pattle Pun, a biology professor at Wheaton College with a Ph.D. in biology from SUNY Buffalo, similarly advocates Progressive Creationism in *Evolution: Nature and Scripture in Conflict?* (1982). He argues against youngearth creationism but insists on *ex nihilo* creation, describing the impossibility of "chance" macro-evolution and the negative effects of Darwinist thinking. He favors an "intermittent day" creationism model, or the view that the creation 'days' were long, overlapping ages (another variant of the Day-Age theory). The book is an expanded version of a 1977 paper in the *J. of the ASA*, and has a Foreword by Russell Mixter of the ASA, and an appendix by J. Oliver Buswell, Jr. on the length of the creation days (Buswell, a Day-Age creationist, was president of Wheaton College).

OMPHALOS THEORY

Philip Henry Gosse tried to accommodate belief in a literal and recent six-day creation with the mounting scientific evidence for the earth's enormous age with an ingenious theory he proposed in *Omphalos: An Attempt to Untie the Geological Knot* (1857), just two years before Darwin's *Origin*. Gosse was a member of the fundamentalist Plymouth Brethren, but also a respected naturalist and marine biologist who popularized the aquarium in England. The dilemma posed by the contradiction between the increasing geological evidence for an ancient earth with its succession of fossil organisms and his staunchly held fundamentalist belief in strict creationism was agonizing for Gosse. He thought he had solved this dilemma with his "Omphalos" theory, or "creation with appearance of age."

Gosse argued that just as Adam was created with a belly-button (*omphalos* in Greek), so too all creatures and the earth itself were created with apparent age—illusory evidence of previous existence. God created all things in cycles of existence, said Gosse. The living world had to be created as an ongoing process in order to function. Regardless of what point in the cycle things were created in, there was necessarily an implication of prior stages of that cycle. These pre-Creation stages were "prochronic" rather than real, however; they did not exist in actual ("diachronic") time.

It is certain that, when the Omnipotent God proposed to create a given organism, the course of that organism was present to his idea, as an ever revolving circle, without beginning and without end. He created it at some point in the circle, and gave it thus an arbitrary beginning; but one which involved all previous rotations of the circle, though only as an ideal, or, in another phrase, prochronic. Is it not possible—I do not ask for more—that in like manner, the natural course of the world was projected in his idea as a perfect whole, and that He determined to create it at some point of that course, which act, however, should involve previous stages, though only ideal or prochronic? [1857:344]

Thus, from the moment of creation, organisms, and the earth itself, showed signs of previous (but "prochronic") existence.

The past conditions or stages of existence in question, can indeed be as triumphantly inferred by legitimate deduction from the present...; they rest on the very same evidences; they are identically the same in every

respect, except in this one, that they were unreal. They exist only in their results; they are effects which never had causes. [1857:124]

God created trees with tree-rings from non-existent previous growth, and animals with evidence of earlier growth and wear—even including excrement in their intestines. There was no organism, says Gosse, “which did not at its creation present indubitable evidences of a previous history. This is not put forth as a hypothesis, but as a necessity; I do not say that it was probably so, but that it was certainly so; not that it may have been thus, but that it could not have been otherwise” (1857:335). Man was created with a belly-button and other signs of a non-existent previous existence; the earth was created with fossils.

In the newly-created Man, the proofs of successive processes requiring time, in the skin, hair, nails, bones, &c. could in no respect be distinguished from the like proofs in a Man of to-day; yet the developments to which they respectively testify are widely different from each other, so far as regards the element of time. Who will say that the suggestion, that the strata of the surface of the earth, with their fossil floras and faunas, may possibly belong to a prochronic development of the mighty plan of the life-history of this world,—who will dare say that such a suggestion is a self-evident absurdity? If we had no example of such a procedure, we might be justified in dealing cavalierly with the hypothesis; but it has been shown that, without a solitary exception, the whole of the vast vegetable and animal kingdoms were created,—mark, I do not say may have been, but MUST have been created—on this principle of a prochronic development, with distinctly traceable records. It was the law of organic creation. [1857:346]

Just as the newly-created Man was, at the first moment of his existence, a man of twenty, or five-and-twenty, or thirty years old; physically, palpably, visibly, so old, though not really, not diachronically. He appeared precisely what he would have appeared had he lived so many years.

Let us suppose that this present year 1857 had been the particular epoch in the projected life-history of the world, which the Creator selected as the era of its actual beginning. At his fiat it appears; but in what condition? Its actual condition at this moment: whatever is now existent would appear, precisely as it does appear. There would be cities filled with swarms of men; there would be houses half-built; castles fallen into ruin; pictures on artists' easels just sketched in; wardrobes filled with half-worn garments; ships sailing over the sea; marks of birds' footsteps on the mud; skeletons whitening the desert sands; human bodies in every stage of decay in the burial-grounds. These and millions of other traces of the past would be found, because they are found in the world now; they belong to the present age of the world; and if it pleased God to call into existence this globe at this epoch of its life-history, the whole of which lay like a map before his infinite mind, it would certainly have presented all these phenomena; not to puzzle the philosopher, but because they are inseparable from the condition of the world at the selected moment of irruption into its history; because they constitute its condition; they make it what it is. [1857:351-352]

It may be objected that to assume the world to have been created with fossil skeletons in its crust—skeletons of animals that never really existed—is to charge the Creator with forming objects whose sole purpose was to deceive us. The reply is obvious. Were the concentric timber-rings of a created tree formed merely to deceive? Were the growth lines of a created shell intended to deceive? Was the navel of the created Man intended to deceive him into the persuasion that he had a parent? [Quoted in Gardner 1957:126]

Gosse considered his theory a triumphant breakthrough: a reconciliation of Genesis and geology which would be embraced by scientist and fundamentalist alike. He was bitterly disappointed when it was rejected by all sides.

Though Gosse was the first (and only) person to carry the creation-with-appearance-of-age argument to its logical extreme as the complete (and highly solipsistic) solution to the glaring contradiction between strict creationism and the evidence of an ancient earth, he was not the first to suggest the idea of creation with appearance of age. The “Scriptural Geologists” Granville Penn, George Fairholme, and J. Mellor Brown all

made use of it. According to Millhauser (1954:74), Penn included it in his *Comparative Estimate of the Mineral and Mosaical Geologies* (1844; originally 1822), and Brown borrowed it from Penn in his *Reflections on Geology, Suggested by Perusal of Dr. Buckland's Bridgewater Treatise* (1838). Millhauser describes Brown's employment of the creation-with-appearance-of-age argument (1954:74):

God, his argument runs, could have performed the work of eras in a single moment if it had so pleased Him; therefore inductive chronology is meaningless when matched against revelation. It is perfectly reasonable to suppose that fossils, with all their appearance of an extended prehistory, might have been created by divine fiat, in their present form, at the same instant as the hills wherein they lie.

George Fairholme, arguing in his *General View of the Geology of Scripture* that the wonderfully harmonious and interdependent adaptations of organisms must have been created simultaneously in order to function, and against the view that they could have developed gradually, also insisted that rocks, as well as plants and man, were "created in their mature and perfect forms": i.e. with appearance of age.

We cannot for a moment suppose the first man to have been once an infant, or the first oak tree to have sprung from an acorn, though all subsequent individuals, in both species, must now pass through these stages. If this perfection of form is admitted, then, in the first creation of the animal and vegetable world, are we to suppose that the mineral productions of the earth were exceptions from this rule? [1833:23]

Most creationists today are embarrassed by the bold totality of Gosse's *Omphalos* argument—see, for instance, Lorella Rouster's "Father and Son: The Tragedy of Edmund Gosse" (1980)—but very many continue to rely on creation with appearance of age for specific cases of refractory evidence, at least as a subsidiary explanation. George McCready Price, in *How Did the World Begin?*, presents Gosse's *Omphalos* argument in his chapter "The Cycle of Life," even reproducing several of Gosse's diagrams. Following Gosse, Price argues that most organisms must have been created in their mature form rather than at embryonic stages of their life cycles, though creation at any point in the cycle would result in the appearance of prior stages in the cycle.

An important principle follows from these facts. Since Adam was created after all the rest of creation had been completed, he had no personal knowledge of what had been done. He merely awoke and found himself in a very complete and beautiful world. If at that time he had examined the various objects around him, he might have been entirely mistaken concerning their age. [1942:84]

For Price, this is a corollary of his principle that "creation was entirely different from the processes with which we are acquainted in the world today." God created the world, which inevitably exhibited "appearance of age" from the very first moment, due to the cyclical nature of existence. We can reason about the past by extrapolating backwards in terms of present processes, but only until we reach the moment of creation. At that point, knowledge of present processes yields only illusory knowledge of the (non-existent) past.

In *The Genesis Flood*, Whitcomb and Morris reaffirm this major principle, and its creation-with-appearance-of-age corollary. The soil must have been created as if the rocks had "weathered" for centuries, in order to support plant life, and organisms must have been created with an "appearance of age" (1961:232-233). In fact, Morris argues (Morris wrote this section) that to deny creation with appearance of age is to affirm atheism:

Men complain, however, that God would be dishonest to create things with an appearance of age. ...This sort of reasoning is...essentially an affirmation of atheism, a denial of the possibility of a real Creation. If God actually created anything at all, even the simplest atoms, those atoms or other creations would necessarily have an appearance of some age. There could be no genuine creation of any kind, without an initial appearance of age inherent in it. It would still be possible to interpret the newlycreated matter in terms of some kind of previous evolutionary history. And if God could create atomic stuff with an appearance of age—in other words, if God exists!—then there is no reason why He could not, in full conformity with His character of Truth, create a whole universe full-grown. [1961:238]

In *Creation According to God's Word*, Whitcomb discusses Gosse specifically, in his section "Creation Involved a Superficial Appearance of History." While affirming creation-with-appearance-of-age as a general principle, Whitcomb disagrees with Gosse's extreme though consistent application of it. He contends that "God did *not* create a world filled with unmistakable and essentially unnecessary testimonies to a previous history simply for the purpose of deceiving men" (1966:7). Contrary to Gosse, Adam was not created with a belly-button, since this would not have been necessary for his functioning as a mature created being; nor were trees necessarily created with growth rings. But the wine which Jesus created out of water must have appeared as if it had undergone the ordinary chemical processes by which grape juice turns into wine.

Morris further endorsed "creation with appearance of age" in his pamphlet *Biblical Catastrophism and Geology*, based on a 1962 talk to the Houston Geological Society.

To some extent, therefore, the whole world was created at some time in the past, by processes unknown to us, with an "appearance of age." This fact must be given full consideration in the construction of a geological history or the use of a geological chronometer. For instance, the primeval ocean may already have been saline, radioactive minerals may have already contained daughter elements, light from distant stars may have been visible on the earth at the instant of their creation, and so on, even as Adam was created as a full-grown man. [1963:6]

In *The Remarkable Birth of Planet Earth*, Morris enlarges on the notion of creation of starlight en route from distant stars (perhaps even prior to creation of the stars themselves) which would make it look as if this light had been travelling millions of light-years:

Why is it less difficult to create a star than to create the emanations from that star? In fact, had not God created "light" on Day One prior to His construction of "lights" on Day Four? It is even possible that the "light" bathing the earth on the first three days was created in space as en route from the innumerable "light bearers" which were yet to be constituted on the fourth day. ... Actually, real creation necessarily involves creation of "apparent age." [1978:62]

Acceptance of creation with appearance of age conveniently invalidates any dating method which contradicts young-earth creationism. "Therefore do not be impressed by the "apparent age" of prehistoric formations. The "true age" is what God says it is, and there is no other way of determining it" (1978:95).

In *Evolution and the Modern Christian*, Morris states Price's principle and its creation-with-appearance-of-age corollary thus:

Thus, the entire world would have been brought into existence as a fully functioning integrated whole, right from the beginning. Every portion of it would necessarily have an "appearance of age" at the very moment of its creation. [1967:49]

It may be possible to derive some kind of relation eventually between the “apparent age” and the “true age,” but, if this is possible at all, it must ultimately be based on divine revelation as to the “true age.”

In the last analysis, we must finally conclude that if we are to know *anything* about creation—its date, processes, order, duration, or anything else—the Creator must tell us! Science cannot tell us, since science can deal only with present processes, and present processes are not creative processes. But this very fact, as we have seen, strongly argues for the fact of Creation sometime in the past. If we expect to learn anything more than this about the Creation, then God alone can tell us. And He has told us! In the Bible, which is the Word of God, He has told us everything we *need* to know about the Creation and earth’s primeval history. [1967:54]

Frank Lewis Marsh, in *Studies in Creationism*, also defends creation with appearance of age. “We do not know whether or not Adam had a navel,” or if trees had growth rings, says Marsh, but God certainly created trees, animals and man in their mature state (1950:128).

The “supernaturalist” [young-earth Flood Geology] creationist argues that if the Creator chose to form mature men, whales, and trees in a moment of time, . . . without depending upon the natural rates of growth, it would be expected that He would also create inorganic materials in a moment and yet in such a way as to indicate possibly great stretches of time. [1950:129]

These false appearances of age are not deceptive of God, Marsh says, because God explained all this to Adam.

The information with regard to the origin and age of the earth and of organisms upon it which may not be discoverable from nature alone, that which was imparted to Adam by the spoken word, is available to modern scientist in the written Word. [1950:130]

In his *Handy Dandy Evolution Refuter*, Robert Kofahl also addresses the question of whether these false appearances of age show deception by God.

The Garden of Eden was filled with false appearances of age, it is true—full-grown trees, plants, animals, an entire biosphere... But this is not deceptive, since God has told us what He did, and we need but believe what He tells us. Those who insist that the world made itself are deceiving themselves. [1980:130]

James Jauncey urges reconsideration of Gosse’s theory in *Science Returns to God*, pointing out that it “allows you to have your cake and eat it too”: it is compatible with both strict creationism and standard geological chronology. Gosse’s theory, he writes,

founded on the objection that it was incredible that God should create a gigantic lie, even though intrinsically necessary for instantaneous creation. However, now that we have abandoned the absoluteness of time, the residual prehistory of instantaneous creation doesn’t have to be an illusion. It could have really occurred, but in compressed time, in the lightning flash that preceded the finished work. That is, geologic history, the fossil record, the radioactive rundown and all the other factors that would in our time reference take millions of years, in another time context could be momentary. [1961:46-47]

Bolton Davidheiser similarly urges reconsideration of Gosse in *Evolution and Christian Faith*:

[Gosse’s] view was not well received at the time, but has been revived in recent times. Scientists who have no interest in the Bible would not consider Gosse’s view, but Christians ought to give it some thought. [1969:299]

Davidheiser does not speculate whether Adam was created with a belly-button or not, but notes that Adam and the animals were created fully developed. He continues:

We may wonder—if a tree in the Garden of Eden had been cut down, would it have shown rings of growth? Probably so. Might not this extend to the mineral creation? Would uranium ores have shown radiogenic end products at that time? We can only speculate, but the evolutionists do a very great deal more speculating than Christians do. [1969:299-300]

Frederick Filby, in *Creation Revealed* (1964), calls Gosse's *Omphalos* "that masterpiece of logic and literature."

With inexorable logic Gosse pursues his point through to every region of nature, from the lowest form of life to the highest, and shows that we are no better off if we start with a seed or a babe. The scientific evidence of an earlier stage is inevitably present. It is the old 'hen and egg' problem put in its most rigid and scientific form. Gosse has been laughed at and neglected, and his general conclusion I think rightly rejected, but in scientific knowledge, clearness of logic and humility he stands out far above many of his critics who have failed to grasp the implication of this arguments or who have never even read his original work. [1964:127]

Richard Korthals correctly points out that the assumption of creation with appearance of age makes it impossible to disprove special creation (1972:150-151), and that it is impossible to disprove the assumption as well—he obviously considers this an argument in favor of creationism. In a thought-experiment, he imagines Adam as a scientist, trying to determine the age of the newly-created earth. Adam cuts down a tree and counts the growth rings. Then he calculates ages of various geological features such as canyons, and measures ratios of radioactive substances (1972:149-150). "And so Adam, the scientist, determines the age of the world upon which he is living—a world which according to his reasoning, observations, calculations, and assumptions is at least 3 billion years old—yet it is a world which was created just 8 days earlier."

In *Man's Origin, Man's Destiny*, A.E. Wilder-Smith states that "the illusion of age—lies in the very nature of creation *ex nihilo*" (1975:151).

In *Time and Eternity*, Arthur Custance ponders the classic examples: "If God created a tree, would it have tree rings...?" (1977:32). Custance considers Moses' staff, which God changed into a serpent, then back into a piece of wood. Both the serpent and the new staff, he notes, would show illusory evidence of age, since they were newly-created. Custance confesses that we may never know whether Adam had a belly-button or not, stating that this cannot be determined "by our standards of logical reasoning" (1977: 33). "God can, and does, create instantaneously upon occasion; when He does, the event inevitably has a quality of deception about it: but it is a deception because of the way our minds work and not because of the way God works."

Wilbert Rusch, in *The Argument: Creationism vs. Evolutionism*, presents Gosse's *Omphalos* argument (though he does not name him):

The writer [Rusch himself], as a creationist, would postulate that the result of a creation was a 'breaking into the time cycle,' with everything suddenly a going concern. This would imply that the earth looked as if it had been around a long time, but actually, shortly after creation, everything was relatively young. [1983:46]

This being the case, Rusch argues, we should not expect to be able to date the beginning of the earth, since the apparent pre-Creation time is illusory rather than real. Rusch cites discordant radiometric dates as evidence that the world was indeed created this way.

GAP THEORY: RECENT ADVOCATES AND VARIANTS

Both the standard Gap Theory of creationism and Day-Age creationism remain surprisingly popular today. There are also a number of variants and hybrids.

Arno Gaebelein, one of Scofield's consulting editors for his *Reference Bible*, and the influential editor of the pre-millennialist journal *Our Hope*, argued for the Gap Theory in *The Conflict of the Ages* (1933). He devoted a chapter to Satan's pre-Adamic reign, and traced the roots of the hideous modern evils of atheism, evolution, the Illuminati Conspiracy, and Bolshevism back to this primordial rebellion against God. Louis Talbot, chancellor of Biola College (Bible Institute of Los Angeles) and Talbot Theological Seminary, promoted the Gap Theory in *God's Plan of the Ages* (1946; originally 1936), a book which presented dispensational pre-millennialism.

Many people imagine the Bible teaches that the earth was created in six solar days, but nowhere does the Bible say so... Very clearly the Scriptures teach that God renovated a chaotic earth; and having brought order out of chaos, He created a new being—man—and gave him dominion over the renovated earth. [1946:12,14]

L. Allen Higley, the Wheaton College chemistry and geology professor who became the first president of the short-lived creationist Religion and Science Association in 1935, was a Gap Theory promoter, though the Association founders were young-earth Flood Geology advocates. The other Association members considered the Gap Theory to be "utter foolishness, both Biblically and scientifically," but apparently, according to Morris, thought they could convince Higley to abandon his support of it. However, as Morris notes ruefully, Higley remained committed to it, and his later book *Science and Truth* (1940) was "surely one of the strongest expositions of the gap theory ever published" (1984b:115).

Though he lamented Higley's allegiance to the Gap Theory, Morris himself, foremost promoter of strict young-earth creationism and Flood Geology, who devotes much time and energy to refuting the Gap Theory, Day-Age creationism, and other old-earth types of creationism as dangerous compromises with evolution, once partially succumbed to its temptation. The original edition of his first book, *That You Might Believe* (1946), allowed for (though it did not insist upon) the Gap Theory.

The first verse of the Bible describes the original creation of the earth and, if not the sidereal universe, at least the solar system. There is considerable Scriptural evidence, however, that this original creation was later destroyed, possibly as the result of the sin of Satan and the angelic beings who chose to follow him. The condition of the destroyed earth is, according to this view, then described in the second verse of the first chapter of Genesis. Thus, the interval between the first and second verses of Genesis may be interpreted as a very long period of time. The creative acts of the six days then refer to the rehabilitation of the destroyed earth and the creation of a new creature, man. This interpretation means that the age of the earth is not limited to a few thousand years, but may be as long as science may claim. [Morris 1946:80]

In lectures to friendly audiences, Morris now demurely remarks that this original edition is—fortunately—unavailable.

Paul Johnson, in *Creation* (1938), a volume in the Jehovah's Witnesses *Epiphany Studies in the Scriptures* series, specifically denied subscribing to the standard Gap Theory, but his interpretation is much the same. He holds that there was a long period prior to the six creation days. God set matter (gases) in motion in Genesis 1:1; this uninhabitable primeval chaos then gradually condensed and cooled. Johnson specified that each creation 'day' was 7,000 years long. The Laymen's Home Missionary Movement, a Witness group which split from the followers of Rutherford, still distributes Johnson's book, and repeats his distinctive cosmogony in tracts such as *The Bible vs. Evolution* and *The Evolution Theory Examined*—though without attribution. The latter tract quotes a few fairly recent scientific sources, and the casual reader cannot know that most of the "scientific" arguments are taken from Johnson's 1938 book.

The Jehovah's Witnesses proper (followers of Rutherford) produced the classic anti-evolution book *Did Man Get Here By Evolution or by Creation?* (1967), published in thirteen languages and over eighteen million copies. The Witnesses assert that man was created about 6,000 years ago but allow for a Day-Age interpretation of the six days of creation. They also allow for a Gap Theory interpretation as well (thus combining the two), though they do not stress this (1967:97). The Witnesses' new (1985) book, *Life—How Did It Get Here?: By Evolution Or by Creation?*, an updated version of the 1967 classic, which is richly illustrated and includes many more recent anti-evolution quotes, is somewhat more explicit in allowing for the Gap Theory in addition to a Day-Age interpretation:

The first part of Genesis indicates that the earth could have existed for billions of years before the first Genesis "day," though it does not say for how long. However, it does describe what earth's condition was just before that first "day" began: "Now the earth proved to be formless and waste..." [1985:26]

Both the 1967 and 1985 books go on to present a Day-Age interpretation in more detail.

Carl Theodore Schwarze, a professor of civil engineering at NYU and a member of the Plymouth Brethren, supported a Gap Theory scheme in conjunction with his development of the pre-Flood Canopy theory (see later). In *The Harmony of Science and the Bible* (1942) and in *The Marvel of Earth's Canopies* (1957) he argued that this canopy was formed in pre-Adamic times. Satan was ruler over "intelligent and powerful creatures that inhabited this earth before Adam": the fallen angels, or demons. This sinful world was destroyed in an atomic blast which lofted up the Canopy. Schwarze suggested that Satan or his evil followers triggered this cataclysmic, world-destroying explosion by reckless dabbling in atomic research. This explosion is the destruction of the world described in Genesis 1:2; the future destruction of the world prophesied in II Peter 3:10 will probably be a similar nuclear explosion (1942:54-60; 1957:12-13,57).

A pamphlet by the International Christian Crusade of Toronto, *A Biblical Cosmology* (1976), argues against both evolution and young-earth creationism, presenting in its stead the Gap Theory. Ussher's chronology is defended as valid for events since the re-creation. (John Howitt was the unlisted author of this and other ICC pamphlets, including the one which converted Gish to creationism. These other ICC pamphlets by Howitt do not discuss the Gap Theory or any events prior to the six-day creation.)

Why We Believe in Creation Not in Evolution (1959; now in its eighth edition), by Fred John Meldau, editor of *Christian Victory Magazine*, is a compendium of creation-

science evidences. Near the end of the book Meldau mentions that there have been “two or more overwhelming Deluges in the history of our earth.” One such geologically cataclysmic event was Noah’s Flood; another was the tremendous upheaval “implied in Genesis 1:2” (1974:309). Mankind was created 6-8,000 years ago.

Bob West of Orlando, Florida advocates the Gap Theory in his thirteen-part pamphlet series *Evolution Vs Science and the Bible* (1974). West denounces evolution as unscientific and because it contradicts the Bible. His pamphlets, he says, are intended as a counter-attack against the evolutionist propaganda children are subjected to even before they start school. “The Bible record is the only record that harmonizes with scientific fact,” he declares.

Many people have been exposed to the Gap Theory through the efforts of Herbert W. Armstrong, his *Plain Truth* magazine, and his Worldwide Church of God’s *The World Tomorrow* radio and television broadcasts. In 1926, at the age of 34, Armstrong’s successful advertising business collapsed, and he plunged into an intensive search for Truth, provoked by his wife’s assertion that Sunday was not the true day of worship, and by doubts about evolution. Armstrong became convinced that he—and he alone—discovered Truth. He founded the Worldwide Church of God, began publishing *The Plain Truth* in 1934, and founded Ambassador College in 1947 in Pasadena, California (with branch campuses in Texas and England).

Armstrong is not a strict fundamentalist, and indeed, mainline fundamentalists consider him a heretical cultleader. He denies key fundamentalist doctrines such as the Trinity, the reality of Hell, the immortality of the soul and Sunday worship, and espouses a version of British-Israelism—the doctrine that Britons and Americans are the true descendants of the Lost Tribes of Israel, God’s Chosen People, heir to all His promises. In contrast to strict fundamentalists, who stress the “perspicuity” of the Bible in addition to its inerrancy, Armstrong views the Bible as a great “mystery” or “puzzle” not intended to be decoded until now, when God revealed to him its secrets. Armstrong’s book *Mystery of the Ages* (1985), published just before his death in 1986, has been serialized in *The Plain Truth*; in it Armstrong reveals the Bible’s hidden messages.

Armstrong, who is not eager to credit apostate predecessors, declares that his Gap Theory interpretation is a “surprising truth.-unrecognized by religion, by science and by higher education” (1985:63). Stoutly anti-evolutionist since his initial Bible studies in the 1920s, Armstrong has advocated the Gap Theory for decades. His 1959 booklet *Did God Create a Devil?*, which is still in print, for instance, explains the origin and nature of the Devil by reference to the Gap Theory. Ages ago, God created a perfect world (not the Chaos of Gen. 1:2). Lucifer rebelled with one-third of the angels; God then destroyed, and re-created the world. (God, so the lesson goes, didn’t create a devil: He created a perfect angel with free will, who rebelled.) Armstrong presents the standard Gap Theory arguments, and refers to the same Bible passages as supporting the Gap Theory scenario of the pre-Adamic reign of Satan and his fallen angels—without, however, acknowledging other Gap Theory advocates. Armstrong allows for an earth millions or billions (even “trillions”) of years old, with the re-creation “approximately 6,000 years ago.”

Mystery of the Ages contains many sections describing the Gap Theory. Most issues of the *Plain Truth* have contained at least allusions to it. Often, *Plain Truth* anti-evolution articles profess to be against both evolution and against “creationism”—that is,

“fundamentalist groups-called scientific creationists.” (See, for instance, “Evolutionists and Creationists Are At It Again!”: Elliot 1983.) This declared opposition to both evolution and “creationism” results from Armstrong’s Gap Theory position; he calls “creationists” to task for believing in Flood Geology and a young earth. (It is also a reflection of Armstrong’s claim to sole possession of truth.) The anti-evolution arguments in these articles, and in booklets written by Armstrong’s son Garner Ted before their final schism such as *A Theory for the Birds* (1971; originally 1967), *A Whale of a Tale* (1968), *Some Fishy Stories About an Unproved Theory* (1971; originally 1966), *The Amazing Archer Fish Disproves Evolution!* (1967), and *The Fable of the First Fatal Flight* (1966), are exactly the same as those of the “creationists.”

A.G. Tilney, the prolific Evolution Protest Movement pamphleteer, was a Gap Theory supporter, though he does not mention this in his EPM pamphlets, which consist instead of attacks on evolution. In 1970 he published a book, *Without Form and Void*, which presumably concerns the Gap Theory (Munday 1986:42). L. Merson Davies, another active EPM member, had a Ph.D. in geology and studied fossil foraminifera. Davies was “the only geologist about whom I have ever heard or read,” says Henry Morris (1984b:107-108), “who gave any credence to the gap theory...” In *The Bible and Modern Science* (1953), Davies argued both for the Gap Theory and for geological effects of the Flood. Davies also teamed up with Douglas Dewar to engage J.B.S. Haldane in published debates on evolution.

M.R. DeHaan, MD, became very well known through his Radio Bible Class broadcasts. (His sons Richard now does the broadcasts.) DeHaan’s book *Genesis & Evolution* (1962) is resolutely creationist. It promotes the Gap Theory, and insists on a literal six-day re-creation.

There is every scientific evidence of a prehistoric creation on this earth... Not many years ago these findings were rejected by orthodox theologians until it was pointed out that the first and second verses of Genesis 1 do not describe the same period. [1962:26]

DeHaan announces that various geological strata provide clear evidence of a “great cataclysmic convulsion of the earth in the dateless past,” and summarizes the standard Gap Theory arguments. He adds one new twist, asserting that the “water” in Gen. 1:2 must have been ice, there being no sun—thus confirming scientific evidence of the Ice Age (1962: 26-27). “The Bible is Scientific,” declares DeHaan:

You see what a dangerous, vicious mistake it is to try to defend the Bible by saying it was not intended to be a book of science. To this statement we answer that God is the only infallible scientist, the Bible is the only book of absolute sciences, and wherever it deals with any branch of science: astronomy, physics, biology, chemistry, geology, mathematics, mechanics, or psychology, it speaks with the same infallible final authority. Not a single statement in the entire Bible has ever been disproven by true science, but in every case true science has confirmed the revelation of Scripture. [1962:16]

DeHaan sees evolution as a deliberate attack on Christianity (1962:41). He repeatedly insists that “if the evolutionary theory of the origin of man by evolution from lower animals were ever proved true, it would automatically disprove the Bible, and reduce it to an antiquated compilation of superstitions, fable and fancies unworthy of a place in human history” (1962:56-57). Evolution renders original sin, and Christ’s redemptive sacrifice, utterly pointless.

David Riegle, a teacher, favors the Gap Theory in his book *Creation or Evolution?* (originally 1962; a completely revised edition in 1971 has a Foreword by John N. Moore), though he also considers the Day-Age and intermittent-day theories respectfully. Riegle is honest about his motivations: “My main criticism of [teaching of evolution] is that pupils do not get an opportunity to read materials presenting the Bible story of Creation” (1962:5). He concedes that though some arguments can be made for the animal ancestry of man, the idea is “distasteful” to many people. He also considers the simplicity of Creation as opposed to evolution, with all its gaps and transformations, to be an argument in its favor: “One does not need much imagination to grasp the story of the Creation as related by Moses” (1962:34). “Let us accept the Bible story of Creation, in its entirety, and have faith enough in the God of Creation to believe that there is purpose in the things which we do not understand” (1962:51).

In *Fossils and the Word of God* (1964), Walter Galusha proposes a modified Gap Theory, adding an extra creation. The first creation was followed by a catastrophe. The first people, fossil cave-men, inhabited the second creation; then there was a second catastrophe. Adam and Eve were created in the third creation, some 6,000 years ago; Noah’s Flood destroyed that world in 2310 B.C. Galusha says that Noah could talk to the animals, and they helped him build the Ark. Since there were no carnivores in Eden, he suggests that boa constrictors may have swallowed watermelons rather than prey. The antediluvians, he was able to determine, had electricity, but not internal combustion engines.

Charles Ryrie, a professor at Dallas Theological Seminary with a Ph.D. from the University of Edinburgh, rejects Ussher’s chronology but insists man is a recent creation. In his book *You Mean the Bible Teaches That?* (1974) he admits that Gen. 1:1-2 “may cover an interminably long period of time”: i.e. the Gap Theory. However, he also presents a Day-Age interpretation, and for good measure throws in the effects of the worldwide Flood and also creation with appearance of age (1974:121-122). Ryrie also wrote the tract *We Believe in Creation* (1967) stating the official position of the Dallas Theological Seminary faculty—again, allowing for either Gap Theory or Day-Age creationism.

Rueben Katter, after a career in business and religious college administration, wrote two books “reconciling the theological and scientific viewpoints of the creation of the universe,” produced through Theotes-Logos Research, apparently a one-man group of Katter’s. In *The History of Creation and Origin of the Species: A Scientific Theological Viewpoint* (1967; revised and updated in 1984) and in *Creationism: The Scientific Evidence of Creator Plan and Purpose for Mankind in His Universe* (1979), Katter reveals God’s colossal plan for the future and explains how the entire history of the world and of life was part of this divine conception. These intricate and bizarre Bible-science treatises are derived from fundamentalist creation-science but are clearly stamped with Katter’s idiosyncratic approach.

According to Katter, the earth was created about twenty or so billion years ago. Katter accepts the standard geological timetable but interprets these ages as God’s carefully prepared stages. (Katter’s pre-Adamic chronology is summarized in 1984:118-119.) The primeval earth was under Lucifer’s management; he turned to evil, however, becoming Satan. Beginning about 20,000 B.C. the earth was subjected to a period of four Ice Ages, ending about 8,000 B.C. with the worldwide Catastrophe which God

precipitated by shifting the earth's axis. (II Peter refers to this Catastrophe, not to Noah's Flood.) God re-created the world six to eight thousand years ago as described in Genesis. Katter accepts the traditional date of Oct. 23, 4004 B.C. for Adam's creation. Noah's Flood occurred 1656 years later (also the traditional reckoning), on Halloween. According to Katter, "The Bible gives a clear picture of the Catastrophic judgement which followed Lucifer's rebellion." (1984:106-107). Katter includes detailed information about the dispensational scheme of history exhibited and prophesied in the Great Pyramid and other evidence from prophecy and Bible numerology. The Pyramid predicts "3000 A.D. as the time of the Great White Throne Judgment" (1984:36). Katter rounds off his treatise by explaining the twelve vast energy systems and dimensional levels of the cosmos, proposing a new atomic force along the way.

Another Gap Theory defense is the introductory essay by S.G. Posey in John Scott's strange book *The Four Most Glorious Events in Human History: Or the Refutation of Evolution* (n.d.). Posey, who deplors the "parading" of atheistic evolution on television, asserts that the false evolutionary assumptions are the result of mis-translation of Gen. 1:2—"was" instead of "became"—in the King James Bible. Posey, a Southern Baptist, proclaims the standard Gap Theory sequence.

R.B. Thieme's *Creation, Chaos, and Restoration* (1973) also presents the standard Gap Theory view (R. Price 1982:25). (Dan Quayle's wife has been a follower of Thieme's controversial Berachah Church in Houston.)

J. Vernon McGee, former pastor of Los Angeles' Church of the Open Door and a radio evangelist since 1941, has presented the Gap Theory in his "Thru the Bible Radio" program broadcast in all 50 states and six continents. The messages collected in *Genesis—Vol. I* (1975) contain his Gap Theory defense, which follows the standard scenario of Satan's pre-Adamic reign. This book, which preserves the chatty style of his broadcasts (still aired), ridicules science and repeats many anti-evolution quotes and arguments. McGee, who recommends the *Scofield Bible*, also praises the ICR creation-scientists.

Inspired by Herbert W. Armstrong, and acknowledging the assistance of his Ambassador College faculty,³⁷ William Dankenbring has written several books espousing Gap Theory creationism. Dankenbring wrote a 1973 article on creation/evolution for *The Plain Truth*, and now heads Triumph Publishing Company in Altadena, California. *The First Genesis: The Saga of Creation vs. Evolution* (1979; originally 1975) covers the standard creation-science arguments, including tales of Noah's Ark. The 1979 edition includes a Foreword by NASA's Wernher von Braun. "Evolutionists often lump all Creationists in the same bag," complains Dankenbring (1979:3), "not realizing there are broad and vast differences of thought among Creationists about Creation itself." Namely, there are young-earth creationists, and there are Gap Theory creationists (and others). Dankenbring affirms the great age of the earth as demonstrated by science, and presents the traditional Gap Theory interpretation, describing Lucifer's Fall and pre-Adamic reign.

³⁷ An undated MS by Dankenbring in the Ambassador College Library, *Did God Create the Universe?: A New Look at the Creation/Evolution Controversy*, thanks Ambassador College faculty for their assistance, especially Stig Erlander (Iowa State biochemistry Ph.D.). This MS, which includes references up to 1970, is a preliminary version of *First Genesis*.

God is not a great deceiver, or a cosmological practical joker. God had no reason to create a world which appears old, but in reality is only 6,000 years old. The great age of the earth, and life upon it, does not conflict with the Scriptures in any way. When we take both the Biblical record, and the facts amassed by science, and let the facts speak for themselves, then we must conclude that God indeed created the world, and life upon it. But much time passed in the process. The geologic record indicates that God created new forms of life at various stages of His Divine plan. [1984:168]

“In the beginning,” we read, “God created the heavens and the earth” (Genesis 1:1). The angels were created before the earth was founded (Job 38:4-7). This ancient conflict, therefore, was probably millions of years ago—maybe even billions of years ago. Satan’s Rebellion, with one third of the angels composing his aggressing army invading heaven, must have been responsible for the chaos and destruction which is recorded in Genesis 1:2—the tohu and bohu and darkness which covered the earth, long before the creation of Adam and Eve. The cataclysm in Genesis 1:2 is undoubtedly related to the cataclysmic fall of Lucifer from heaven. [1984:197]

After the chaos and destruction which occurred, in verse two of Genesis one, God began a process of recreation, reconstruction, if you please, which lasted for seven days. [1984:203]

Dankenbring suggests that the neanderthals were surviving remnants of the pre-Adamic Nephilim of Genesis 6:4 (1984:229), a theory proposed by Kenneth Hermann of the Texas branch of Ambassador College. Adam was probably created 4024 B.C.

Dankenbring’s *The Creation Book for Children* (1976) also presents the Gap Theory, and includes another Foreword by von Braun. *Beyond Star Wars* (1978) carries this blurb, referring to Satan’s pre-Adamic rebellion:

Star Wars really happened! Long ago great battles raged in the universe. A great war caused vast destruction throughout the cosmos and upon the earth. Super beings battled for control of the universe, space, and time.

Contemporary UFOs, explains Dankenbring, are really a diversion to scare people into expecting an invasion from outer-space, then to reject Christ at His Second Coming. Other subjects covered include Joshua’s Long Day (caused by a comet disturbing the earth’s rotation), the Lost Continent of Atlantis, Maps of the Ancient Sea Kings, the Great Pyramid (Pharaoh Cheops was actually Job; the Pyramid itself was a memorial to the Flood), the Tower of Babel, frozen mammoths, and surviving Neanderthals. “There can be no doubt that pre-Adamic races of mankind—from the so-called man apes of the Australopithecines and Homo erectus to Neanderthal man and Cro-Magnon man—walked the earth before Adam was ever created.”

Joel and Jane French continued this theme with *War Beyond the Stars: Angelic Encounters* (1979). Joel French, a staff engineer with a NASA contractor, is with the NASA chapter of the Full Gospel Business Men Fellowship International in Houston, and has “shared testimony” with astronaut Tom Stafford. Their book concerns the heavenly war following the rebellion of Lucifer and one-third of the angels. Man was created later, where the dethroned Satan had once ruled: in other words, the Gap Theory. The Frenches are particularly concerned with UFOs, which are supernatural space vehicles, either of God or Satan. They also discuss Hitler’s Satanic inspiration, but explain that there was godly intervention in World War II as well. A mysterious stranger, for instance—really the Archangel Michael—appeared at the Nazi General Staff meetings and persuaded the fiendishly clever German High Command to adopt disastrous strategy decisions, providentially affecting the outcome of the war.

Benny Hinn, an Israeli-born, Canadian-bred televangelist who heads Orlando Christian Center in Orlando, Florida, also exploits the star wars motif in *War in the Heavens* (1984). This book gives a thoroughly standard Gap Theory presentation, though Hinn is far more concerned with Satan and his demons than with geology or biology. Hinn received the Holy Spirit attending meetings of faith-healer Kathryn Kuhlman, and was miraculously cured of stuttering when he accepted the calling of the Lord to preach. Hinn, like most Gap theorists, believes that demons are the disembodied former inhabitants of the pre-Adamic world; it is because of this condition that they desperately seek to possess our human bodies. Satan's fallen angels are not demons. Satan was cast out of the third heaven; he and his fallen angels still inhabit the second heaven (though "he visits here a lot"). Most demons are imprisoned in the Abyss, one of the five underworlds; relatively few are at loose on earth. The Hell of Tartarus, another of the underworlds, holds those fallen angels who have "left their own habitation." Hinn explains that these are the "sons of God" who, leaving the second heaven, cohabited with women (the "daughters of men") as described in Gen. 6; their offspring were the wicked giants (*Nephilim*) of the days before the Flood.

Kenneth Hagin, well-known author, televangelist, and head of RHEMA Bible Church (a.k.a. Kenneth Hagin Ministries), includes the Gap Theory in his 1983 booklet *The Origin and Operation of Demons* (Volume 1 of his 4-volume "Satan, Demons and Demon Possession" series). Hagin is concerned with the same themes as Hinn: the "wicked spirits in the heavens"; their abodes in the various heavens, their natures, history, and classification. Like Hinn, he was miraculously cured; he was "almost totally paralyzed and completely bedfast from a deformed heart and incurable blood disease" when he answered the Lord's call. Hagin has the ability to "discern what kind of spirits are in a locality." He detects very many, and most are evil. Hagin believes that the only logical explanation for all these spirits is the pre-Adamic creation of the Gap Theory. They were members of Satan's pre-Adamic kingdom on earth.

The Gap Theory is taught in two volumes of Corvin's *Home Bible Study Course* (1976) published by Jim Bakker's PTL network (Bixler 1986:87n). Howard Estep, a televangelist whose World Prophetic Ministry is based in Colton, California, concentrates on pre-millennialist Bible prophecy, but also teaches the Gap Theory in booklets such as *Evolution: True or False?* (1969), *Jehovah—Adam—And You!*, and *Eons of Ages Ago!*.

Don Wardell, in *God Created* (1984), argues against young-earth creationism and Flood Geology. His Gap Theory presentation contains many of the usual arguments in simplified form. He suggests, however, that some plants and animals—seeds and "living fossils"—survived the darkness and flood of Gen. 1:2 into the six-day restoration and recreation (1984:17,56-67). (Scofield and others had also suggested that seeds may have survived from the original creation.)

Ronald Wlodyga, another follower of Herbert W. Armstrong, thanks Armstrong and Dankenbring (his publisher) for assistance with his book *The Ultimate Source of All Super Natural Phenomena* (1981). Wlodyga's theme is that all supernatural phenomena, including all occult and paranormal manifestations, emanate from Satan—except for God's miracles.

Based on certain scriptures, it seems evident that the earth was originally intended to be the dwelling place of a third of the angels. It appears that God placed them there as a training ground to see if they would accept the government of God. [1981:30]

Then Lucifer rebelled, becoming Satan the Devil. Wlodyga says the correct translation of Genesis 1:1-2 should be:

In the beginning the God family created the heavens and the earth by the 'Word' the personage that ultimately became Jesus Christ. And the earth became chaotic and confused... [1981:34]

“Yes, even before Adam was created, the world was in chaotic confusion... The seven days of creation, then, were a re-creation of the earth by the personage of Jesus Christ!” Wlodyga allots a whole section of his book to Satan’s pre-Adamic rebellion and the Gap Theory.

It’s Science Fiction—It’s a Fraud (1984) is a contentious booklet by Reginald M. Daly, a college physics and math teacher and nephew of prominent Harvard geologist Reginald A. Daly. In a previous book, *Earth’s Most Challenging Mysteries* (1972), Daly defended Flood Geology, but in this booklet he argues strongly for the Gap Theory, sharply criticizing Morris and other young-earth Flood Geologists, and praising Custance. The first two verses of Genesis imply “an original creation long before the first day, in the undefined ‘beginning,’ followed by a catastrophic judgment that plunged the earth into a state of devastation and ruin from which it was restored during the six days” (1984:25). Daly says that the destruction of the “world that then was” by flood in II Peter refers to this pre-Adamic catastrophe rather than Noah’s Flood. He agrees with Ussher’s date of 4004 B.C. for the six-day (re-)creation, and 2348 B.C. for the Flood. Daly ridicules plate tectonics at length: “Seldom if ever has science reached a peak of absurdity equivalent to geology’s theories that continents ride on ‘plates’ and crash into each other with force sufficient to underthrust and uplift the world’s biggest mountains” (1984:17).

The cover of Daly’s booklet proclaims: “Evolution is a quasi-religion camouflaged as ‘science.’ It’s unconstitutional to use our taxes to brainwash students with irreligious, one-side only [sic].” Daly does not want evolution taught at all. The creationist appeal for balanced presentation in the schools “may sound plausible as an evolution-creation compromise, but it won’t work.” In his earlier book, which consists mostly of fairly technical geological anti-evolution arguments, Daly approvingly cited strict creationists Price, Fairholme, Byron Nelson, Rehwinkel, and Morris, as well as catastrophists Velikovsky and Howorth and other creationists. Daly concludes that “Evolution has been established in the schools, contrary to the Constitution, as a state religion” (1972:392)—a deliberately anti-Christian religion.

Televangelist Jimmy Swaggart of Baton Rouge, Louisiana regularly denounces evolution and preaches Gap Theory creationism. Swaggart is a fire-breathing Spirit-filled old-time Pentecostal preacher who plays his vast audiences as skillfully and effectively as he plays his gospel piano. (He learned to play on the same keyboard as his first cousin, rock’n’roll pioneer Jerry Lee Lewis, and claims to have sold more gospel albums than any other artist.) Before the recent scandal, Swaggart’s weekly crusade broadcast was second only to Pat Robertson’s *700 Club* among religious shows. It was seen by over sixteen million viewers every month according to a Nielson survey, and Swaggart’s daily

Bible-study show was among the top ten as well.³⁸ Though Swaggart is proudly contemptuous of academics, scientists, and intellectuals, he nevertheless seems to betray a bitterness and envy regarding the powerful authority of science in modern society, and grasps naively at any Bible-science rumor or tale that promises to undermine the validity of evolution or prove the inerrancy of the Bible (McIver 1986a).

Besides frequent exposure in his televised crusade sermons and his various publications, Swaggart presents the Gap Theory in an audiocassette set *The Pre-Adamic Creation and Evolution*. The entire first half of this three-tape set is devoted to a presentation and defense of the Gap Theory. In addition to describing Satan's pre-Adamic reign in considerable detail, Swaggart emphasizes the necessity of allowing for vast ages since the original creation. Geologists are "probably correct" in their claims regarding the age of the earth, he admits. The second half of the set consists of scathing ridicule of evolution (though lacking the spell-binding exhortative oratory of his live audience crusades). Swaggart includes many quips and quotes from no less an authority than William Jennings Bryan.

Many of these are repeated in his section on evolution in his book *Questions & Answers: Bible-Based Answers to Your Questions About Life* (1985).

The evolutionists teach that hair is but elongated scales of prehistoric animals. They teach that legs of all animals developed from warts on aboriginal amphibians. They teach that eyes are but an accidental development of freckles of blind amphibians that responded to the sun. They also teach that ears came about by the airwaves calling to spots on early reptiles. They teach that man came from monkeys. They teach that vast universes came from a few molecules. They actually teach that nothing working on nothing by nothing through nothing for nothing begat everything! [1985a:103-104]

He also denounces evolution in his book *Rape of a Nation* (1985) and in his journal *The Evangelist*.

But it is Swaggart's live preaching before packed audiences in which he is most effective. (I have attended his crusade services, both before and after the scandal, and have watched his crusade telecasts for a number of years.) After rousing musical build-ups, Swaggart roams about the large stage brandishing his Bible, alternately pleading and raging. He preaches in a wonderfully cadenced, rhythmical style, often building from a hushed whisper in magnificent Rossini-esque crescendos to alliterative and poundingly repetitive phrases shouted in magnificent fortissimos.

Some samples (my transcriptions from various telecasts):

I want you to see and sense what is being taught in our public schools. Most don't know; most do not understand. God has been forsaken. Evolutionary dogma, evolution is taught as unquestionable scientific fact when in reality it's one of the biggest *lies* that Hell ever concocted. There's no truth in it. [Applause] I've said it before and I'll say it again: Any teacher that would stand before children and teach evolution is one day going to stand before God and answer God for subverting the minds of the children that they stand before. [Applause] No sensible, no right-thinking individual, that has one iota of common sense, can ever begin to believe in evolution. None. ["America at the Crossroads": 11/11/84 telecast]

When [the Bible] said over there, that God made Adam out of the dust of the earth you can laugh at it if you want but brother, find something better. The best the world has ever been able to find is a monkey.

³⁸ Robertson's show has also dropped in the rankings since his presidential campaign. The Worldwide Church of God's World Tomorrow, after uncertainty following Armstrong's death, has now surpassed both Robertson and Swaggart, but Swaggart is fighting hard to regain his audiences.

You listening to me? I would rather believe in God than believe in a monkey. [Applause] I would rather believe in God than believe in the monkeys that *gave* us the monkeys. When God said “Let there be light” He simply meant that darkness that had covered this earth as a result of the Satanic Fall, and how that had corrupted itself, and it had caused untold agony and all had been broken down. Because when God created it in the beginning, He didn’t create it a waste. He did not create it a black darkness. The evolutionist will beat your head in if you try to think this earth is only six thousand years old; it’s older than that. I don’t know when God created it; it might have been a thou- ten thousand years ago, twenty, fifty, a million years ago, ten million years ago. A day with the Lord is as a thousand years and a thousand years as a day. [Applause] But He created it some time back then. Some of you are looking at me like that. He created it a long time ago. And Satan- then Lucifer ruled it, and then rebelled against God and that rebellion some time back there, that’s when the chaos came and the darkness came, and the fruitful places were broken down, and all the chaos set in. But what it said in the beginning God created the heaven and the earth, there’s a great time gap between verse one and verse two. [“The Glory of God in the Face of Jesus Christ”: 6/23/85 telecast]

You see today we’ve got some brilliant individuals that tell us that man come from monkeys. They’re very intelligent—they tell us. Evolution: one of the biggest jokes that ever was perpetrated on the human race. One of the biggest *lies* that’s ever been told. Now listen to this: They know that the human race population on this planet doubles every one hundred and sixty-one years. That goes back all the way to Noah... Common sense would tell you that at the time of Noah’s Flood, if evolution was true, and man came from a one-cell o-meba, three million years ago, that there would be shoulder-to-shoulder people on the planet fifty miles high—and that’s crowded. The eminent British scientist has mounted, the Associated Press said, a new assault on the Darwinian evolutionary theory, saying the possibility of it being true is so utterly miniscule as to be absurd. Are you listening, TV people? Are you listening? I hope you are. He said—Sir Fred Hoyle—modern developments in microbiology have made it overwhelmingly clear that the truth is quite otherwise. He—Sir Fred Hoyle—directly challenges both the Darwinian concept of gradual evolution of different life forms from common origins, and also that the first living cells developed by random processes in some pre-mordial ooze: in other words they said you came from slime. [“That I May Know Him”: 3/30/84 telecast]

R. Russell Bixler heads Cornerstone TeleVision, which has two Christian TV stations in the Pittsburgh area, and was an organizer and sponsor of the 1986 International Conference on Creationism in Pittsburgh, the theme of which was “the age of the earth.” The conference was dominated by young-earth creationists from the BSA, ICR and CRS; Bixler was one of the very few speakers who was not a strict young-earthier. Though he denies the traditional Gap Theory, Bixler’s view may be considered a variant of it. His book *Earth, Fire and Sea: The Untold Drama of Creation* (1986) came off the press just in time for the conference, though the BSA and CRS did not review it in their journals until a couple of years later (the *CRSQ* was so concerned by it that it gave it three separate reviews in 1988). Bixler asserts he is a Christian who accepts a “quite literalistic view of Gen. 1,” including creation in six literal days. But he rejects *ex nihilo* creation—the very battle cry of strict creationists—as an unbiblical intrusion. From careful study of the Hebrew texts of the Pentateuch, Jewish traditional sources and various ancient commentaries, he concludes that it is a spurious, non-literal interpretation: in fact a gnostic “heresy” resulting from a combination of Zoroastrianism, pagan Greek philosophy, and Egypto-Christian scientism. Bixler appeals to Augustine as supporting his view of a pre-Genesis origin of the Chaos out of which God created the world (1986:73).

Bixler favors a translation making Gen. 1:1 a dependent clause:

In the beginning of God's creating the heavens and the Earth—the earth being a formless waste and darkness being upon the face of the deep and the spirit of God moving over the face of the waters—God said “Let there be light!” [1986:28]

The Bible says (Isa. 45:18) that God did not create the earth as chaos, says Bixler, using the same argument as Gap Theorists. But Bixler does not insert billions of years between these verses as Gap Theorists do; he solves this problem differently—in a way which may be closer to the actual intent of the ancient Hebrews. He suggests that Chaos existed *before* the first verse of Genesis. God may have created it in prior ages, but the Bible does not speak of this. Genesis begins with this Chaos already in existence. Referring to Job, Psalms, and other scriptures, Bixler argues that Chaos was under the control of evil and destructive entities. God's work during the six days of creation involved immense effort: actual “warfare” against this evil Chaos, which resisted mightily. God forcibly restrained the Waters of the Deep (the Abyss) and the Darkness. References to sea monsters or dragon/serpents in the Bible—Leviathan, Rahab—are personifications or examples of this evil which God “muzzled” at creation. During the Flood, God allowed the Waters of the Deep and the Waters Above the Firmament to revert temporarily to their former untamed and unrestrained state. (Bixler equates the Waters Above the Firmament with the water canopy.)

This titanic struggle between God and the evil Chaos during the six day creation is unabashed dualism, as Bixler openly admits: “Certainly the Bible is dualistic!” (1986:133). Bixler is fully aware that his exegesis makes Genesis sound like pagan cosmologies, unlike the later Christian *ex nihilo* interpretation, which stresses its uniqueness. He professes not to worry, saying that “Satan consistently displays the counterfeit, the half-truth.” Bixler also denies the doctrine of dispensationalism, asserting that God operates now just as He has since creation. God creates wine out of water and heals blind eyes in the same way that He created the earth from Chaos.

Inspired by Velikovsky and especially by Donald Patten, who wrote a Foreword to this book (a second Foreword was written by John Rea, a professor at Pat Robertson's CBN University), Bixler proposes that Creation was a cosmic catastrophe: the approach of an ice planet or ice comet to the fiery proto-earth Chaos. The first four days of creation involved extraterrestrial catastrophes. Appealing again to pagan cosmologies, Bixler suggests that the lesser light appointed to rule the night was Saturn (1986:175). A later cosmic cataclysm provoked the Flood and the Ice Age, and restructured the solar system, producing our moon.

Bixler dismisses the standard Gap Theory as an ad hoc “concordistic” attempt to harmonize the *ex nihilo* interpretation with accumulating evidence for an old earth. He praises Weston Fields' exegesis (1976), which refutes the Gap Theory, as “almost flawless” (except for Field's refusal to critically examine *creatio ex nihilo*!), and discusses many of the early commentators claimed to be early Gap Theorists by Custance and others, giving a more plausible rendering of their views as referring to a pre-existent (pre-Gen. 1:1) Chaos.³⁹ Bixler submits that his exegesis eliminates the vexing conflict between young-earth and old-earth dating claims, confessing that there is strong evidence

³⁹ Charles Taylor (1984:48), a strict creationist, protested the 18th-century theological views expressed in Haydn's 1798 oratorio *The Creation* for these reasons. The oratorio's opening section—before God's first creative act (“Let there be light!”)—is a marvelously inspired classical depiction of Chaos. Presumably (according to Taylor) this constitutes a denial of *creatio ex nihilo*.

for both. Bixler solves this dilemma with his proposal that the six-day creation of Genesis occurred just a few thousand years ago, but the pre-existent earth—Chaos—is billions of years old.

The authoritative *Unger's Bible Handbook*, respected by fundamentalists, similarly proposes a “pre-Genesis Gap” while rejecting the standard Gap Theory. Merrill Unger suggests that Gen. 1:1 refers to a “relative” beginning—a “refashioning” of the earth in preparation for the creation of man. The earth was created *ex nihilo* ages prior to Gen. 1:1 (1966:37-38). Unger, who calls his proposal a “recreation-revelation” theory, also includes it in his *Bible Dictionary* (1957:226):

Gen. 1:1-2 does not describe primeval creation *ex nihilo* but a much later refashioning of judgment-ridden earth in preparation for a new order of creation—man. The six days that follow are recreation, revealed to man in six literal days.

DAY-AGE THEORY: RECENT ADVOCATES AND VARIANTS

Day-Age creationism also remains popular. Arthur Rendle-Short, the British surgeon, advocated a Day-Age approach in *Modern Discovery and the Bible* (1942). Fossil men might pre-date Adam, he said, but Adam, with a human soul, was a *de novo* creation. Rendle-Short emphasized “purpose and plan in nature,” stating that evidence for the common ancestry of all life is “totally insufficient.” He also described archeological confirmation of the Bible, and medical knowledge contained in the Bible.

A. Cressy Morrison, a former president of the New York Academy of Sciences, suggested a Day-Age approach in *Man Does Not Stand Alone* (1944), a book he wrote in response to evolutionist Julian Huxley's *Man Stands Alone*. Morrison's book, which was excerpted in *Reader's Digest* in 1960 (followed by a revised edition), is openly religious, but its main argument is that the wonders and design of nature prove a Supreme Intelligence and purpose. Morrison admits the strength of Darwin's theory, but maintains nonetheless that Paley's argument from Design has not been refuted. He describes the marvelous fitness of the earth for life, which he says disproves origin of life by chance. Though he does not actually deny that evolution has occurred, he allows for the possibility of the special creation of man, and insists that any development from lower forms must have been consciously directed by outside intelligence. “The rise of man the animal to a self-conscious reasoning being is too great a step to be taken by the process of material evolution or without creative purpose” (1944:96). The goal of the directive purpose in nature is the creation of intelligence.

Oscar Sanden, the Presbyterian minister and Dean of Northwestern Schools in Minneapolis, argue that the six geological eras equal the six days of creation in Genesis in *Does Science Support the Scriptures?* (1951). (Billy Graham, then President of Northwestern, wrote the Foreword to Sanden's book.) Sanden asserts that the sequence of life on earth as shown by science is “virtually identical” to the Mosaic account, and says that science is proving the Bible true in every field.

Peter Stoner, a math professor at Pasadena City College and Westmont College (Santa Barbara), and one of the founders of the American Scientific Affiliation, similarly promoted Bible-science in *Science Speaks: Scientific Proof of the Accuracy of Prophecy and the Bible* (1969; originally 1958). (A 1944 version was titled *From Science to Souls*. The 1969 edition was “assisted by” Robert C. Newman; he is listed as co-author in the

1976 edition.) Stoner concentrates on probability arguments and Bible prophecy, but also insists that science is confirming the biblical order of creation. “Thus we find that the thirteen things named in Genesis are in the same order that geology finds them” (1969:45).

Cora Reno, who at the time was working on a Ph.D. at Berkeley, covered most of the standard creation-science arguments in *Evolution: Fact or Theory?* (1953), which is addressed to Christian students faced with evolution in school, and analyzes the coverage of evolution in eleven standard textbooks. She assures students that evolution is “a mere theory which is unsustained by scientific proof and that the facts of science do give support to the doctrine of creation.” After refuting the evidence for evolution, Reno asks, “Are you not glad that you were created in the image of God instead of being some higher form of a beastlike creature?” (1953:83). She also denies that belief in an ancient earth is inconsistent with belief in the Bible’s inerrancy. “The proofs that the earth is very old are irrefutable” (1953:30).

In a later book, *Evolution on Trial* (1970; *Evolution and the Bible* is a condensed version), Reno expressed a preference for Day-Age creationism, but mentioned the possibility of creation in six literal days separated by long ages (intermittent-day theory).

Dordt College science professor Russell Maatman argued that all or most of the six Genesis ‘days’ of creation were long periods in *The Bible, Natural Science, and Evolution* (1970). The universe is billions of years old; however, “there is no doubt that each creation event was instantaneous” and *ex nihilo*. Maatman affirms biblical inerrancy, but dismisses Bible-science claims of anticipations of modern science in the Bible, and says that science should not be used to prove the Bible.

R. Laird Harris advocated a Day-Age approach in *Man: God’s Eternal Creation* (1971:47). In *The Bible, the Qur’an, and Science* (1983), Maurice Bucaille, the Islamic French surgeon, wrote that the six ‘days’ of creation described in the Qur’an are long, overlapping periods (1983:135). Bucaille suggests that the perfect Qur’anic revelation uses the term ‘day’ to describe these periods so as not to confuse or antagonize contemporary audiences. He claims that the Qur’anic creation account is “quite different” than the Genesis account, and rejects recent creation of man.

Davis Young of Calvin College is an evangelical geologist with extensive field experience. He argues strongly for an ancient earth and refutes modern Flood Geology and young-earth creationism in *Creation and the Flood* (1977) and *Christianity and the Age of the Earth* (1982), the former book dealing with biblical evidence, and the latter focusing on scientific evidence. *Christianity and the Age of the Earth* is largely a response to Whitcomb and Morris’s *Genesis Flood*, but Young also refutes the young-earth arguments of Whitelaw, Barnes, Nevins [Austin], and Melvin Cook at length. Henry Morris in turn responded directly to Young’s attack in *Science, Scripture and the Young Earth* (1983).

Young defends Day-Age creationism: “I believe that there are exegetical grounds for maintaining that the six days of creation were long, indeterminate periods of time” (1982:161). He admits that there may not be perfect correspondence between the creation sequence in Genesis and the scientific record, but argues that, as it is an interpretation of Scripture, Day-Age creationism is “independent of the facts of nature.” It “should be defended or rejected solely on the grounds that Scripture affirms or denies it” (1982:159).

Young, like Ramm, urges a return to the concordistic approach of the nineteenth-century creationist scientists, praising Buckland, Miller, and Chalmers. He argues persuasively that young-earth creationism damages the credibility of evangelical Christianity.

The faith of many Christian people could be hindered when they ultimately realize that the teachings of the creationists are simply not in accord with the facts. Imagine the trauma and shock of finally realizing that Flood geology, which has been endorsed so enthusiastically by well-meaning Christian leaders, is nothing more than a fantasy.

Furthermore, creationism and Flood geology have put a serious roadblock in the way of unbelieving scientists. Some people who might otherwise be open to the gospel could be completely turned off by Flood geology. No non-Christian geologist is ever going to accept Flood geology or the young-Earth theory these days; the flaws and weaknesses are obvious to any practicing geologist.

Christians must not try to prove the Bible from science. [1982:151-152]

May I plead with my brethren in Christ who are involved in the young-Earth movement to abandon the misleading writing they provide the Christian public. I urge them to study geology more thoroughly. I also urge creationists to be less dogmatic about Scriptural texts over which there has been substantial diversity of interpretation within the historic Christian church. If they would be of service to Christ's kingdom, they should do some honest-to-goodness scientific thinking that takes facts seriously, facts that were created by the God they wish to defend and serve. We Christians need to stop expending our energies in defending a false creationism and in refuting a false creationism. Let us spend our energies on interpreting the Bible and the world that God in His mercy and grace has given us. A vigorous Christian science will be of far more service in meaningful evangelism and apologetics than the fantasies of young-Earth creationism. [1982:163-164]

Rev. Theodore Kline is apparently a Christian Jew: he advocates "Hebrew Christianity." *Cosmic Patterns and the Bible* (1983) is a "biblical application" of Kline's earlier work *The Theory of Universal Trichotomy*, in which he discovered the "utter literalness" of the Bible. Creation was in six days, but these were "universal days" of a billion years each. The fifth day was the age of dinosaurs. Kline theorizes that Lucifer and his followers were active at that time in reptilian form, before God destroyed them. There were pre-Adamic men at the start of the sixth day. The Genesis "sons of God" (godly descendants—Adam's race) mated with "daughters of men" (other, evil races); then all were wiped out by the Flood.

John Wiester, whose book *The Genesis Connection* (1983) formed the basis of much of the ASA booklet *Teaching Science in a Climate of Controversy* (1986), argues for a Day-Age interpretation in his book. The first day/era was the period from the Big Bang to the formation of the earth. The second day/era (creation of the "firmament" above the earth; separation of waters above and below this firmament) covered the period of the outgassing of the atmosphere and water vapor from the primordial earth. The third day/era (separation of land from water; creation of "grass" and "herbs") covered the uplift of the earth's crust and formation of the continents, and the age of blue-green algae. The fourth day/era ("creation" of the sun and stars) included the transformation of the sun's energy on earth from ultraviolet to forms of energy beneficial to animals: the period of the accumulation of oxygen in the atmosphere, and formation of the ozone shield, as a result of photosynthesis. The fifth day/era (creation of sea creatures and birds) was the age of marine life—the Cambrian through the Devonian. The sixth day/era (land animals, and man) covered the later Paleozoic to the present.

William Lee Stokes presents a modified Day-Age interpretation in *The Genesis Answer: A Scientist's Testament for Divine Creation* (1984).

This is the Genesis Code: Each creative 'day' consists of a period dominated by darkness and a period dominated by light. Earth emerged from chaos as a product of the progressive succession of six such periods. The creative days were not of equal duration and were not intended to be measures of time. They are not the periods, epochs, and eras invented by geologists. Their meaning is celestial and not terrestrial. They are God's divisions of his own creation.

Despite disclaiming any direct linkage of the creation days to geological eras, Stokes goes on to explain how each Genesis 'day' corresponds to scientific knowledge of the formation of the earth. He praises recent books by Isaac Asimov and Carl Sagan (notorious "secular humanists," according to strict fundamentalists) for helping him arrive at these conclusions, and criticizes Robert Jastrow for failing to pursue the religious implications of his books.

R.E.D. Clark, author of *Darwin: Before and After* (1967; originally 1948), *The Universe: Plan or Accident?* (1972; originally 1949), and other books highly critical of Darwinism, affirms that creation occurred billions of years ago. According to Alan Hayward (1978:213), Clark argued for the Revelatory Theory of creationism in *The Christian Stake in Science* (1967).

Hayward himself, in *God Is; A Scientist Shows Why It Makes Sense to Believe in God* (1978) said that Day-Age, Revelatory creationism, and what he calls "Days of Divine Fiat" are all possible options. Thus, he says, both Genesis and geology are correct. Hayward goes on to propose the theory of "successive creation": that "God has been at work ever since the universe began, performing a great number of creative acts at intervals" (1978:197-198). In *Creation and Evolution: The Facts and Fallacies* (1985), he expands on these ideas, urging a "middle position" of "ancient creationism." Hayward is strongly opposed to young-earth Flood Geology creationism, and thoroughly refutes all its major scientific arguments. The succession of fossil types is undeniable, says Hayward, but it is not due to evolution; rather, to "successive acts of creation over a long period." Darwinism is "contrary to the evidence, and—evolution is therefore nothing more than an unsupported speculation" (1985:6).

According to Hayward's Days of Divine Fiat theory, creation was declared by God in six days, but the process of creation was manifested over long ages, and the six day/ages may overlap. The first two verses of Genesis describe the original creation of earth, and its original condition.

At this point, God begins to speak. According to the Fiat Theory, the rest of the chapter is basically an account of the great creative fiats, which were uttered upon the six (presumably literal and consecutive) days. Inserted into this primary narrative is a whole series of parentheses, which describe the subsequent fulfillments of the fiats. These out-workings of the fiats, of course, could have taken any amount of time to occur. [1985:170-171]

This theory was first proposed by F.H. Capron in 1902 in his book *The Conflict of Truth*, but subsequently ignored. Dallas Cain, who is affiliated with R.C. Newman's Interdisciplinary Biblical Research institute, has researched it and advocates it in a privately-published paper "Creation and Capron's Explanatory Interpretation" (1982).

Henri Blocher, a French professor of systematic theology, discusses various interpretations of the Genesis creation account, including the "literal" theory (strict

young-earth creationism), the “reconstruction” (Gap) theory, and the “concordist” (Day-Age) theory in *In the Beginning: The Opening Chapters of Genesis* (1984; originally 1979, in French). Blocher prefers what he calls the “literary” interpretation: the Framework Theory. He says the Genesis account is thematic rather than chronological, and the activities of the creation ‘days’ overlap. Blocher accepts transformation of species at least up to the level of Linnean orders, but rejects naturalistic evolution of major forms, and considers the mathematical probability criticisms of evolution “unanswerable.”

Ronald Youngblood of Bethel Seminary West in San Diego also stresses the literary form and analysis of Genesis in *How It All Began: A Bible Commentary for Laymen I-II* (1980). The Bible, he says, “categorically rules out evolution on the grand scale overwhelmingly claimed for it by its supporters,” but he agrees that creation occurred long ages ago. He suggests that the creation ‘days’ are “indefinite and timeless,” and that the Genesis account, while historical, is not fully chronological. As in non-creationist analysis of Genesis as literature or myth, Youngblood points out that the creation days are arranged in a symmetrical verse pattern of three days of “forming” followed by three days of “filling” (populating); he argues that this literary sequence may not be the actual chronological order of events. Youngblood says that pre-Adamic hominids maybe as old as scientists claim, but that at some relatively late point God intervened to produce “biblical” man: Adam and Eve. He accepts the description of Adam’s Fall in Eden as literal, but interprets the long lifespans of the antediluvian patriarchs as a literary device. Cain may have feared the remaining pre-Adamic hominids, he suggests.

OTHER OLD-EARTH CREATIONIST THEORIES

Many old-earth creationists insist that young-earth creationism is mistaken without, however, endorsing any particular old-earth theory. Wilbur Smith, Dean of Moody Bible Institute, affirms old-earth creationism in *Therefore, Stand* (1946), describing both the Day-Age and Gap Theory theories favorably, and also endorsing Guyot’s combined Revelatory and Day-Age interpretation.

First of all, we must dismiss from our mind any conception of a definite period of time, either for creation itself, or for the length of the so-called six creative days. The Bible does not tell us when the world was created. The first chapter of Genesis could take us back to periods millions of years antedating the appearance of man. [1944:312]

In Smith’s Day-Age harmonization, Day 1 refers to the “primacy of water” in the primordial earth, and the first penetration of light onto its surface. Day 2, the “dividing” of the waters, refers to the formation of dense vapor clouds. Day 3 refers to the emergence of land and appearance of plants. The sun became visible when the opaque cloud canopy was withdrawn on Day 4. Day 5, the creation of water animals, occurred at the end of the Paleozoic. “Birds” were also created on this day: Smith stresses the similarity of birds to fishes (1944:323). Day 6 commenced at the Mesozoic-Cenozoic boundary.

Evan Shute’s *Flaws in the Theory of Evolution* (1962; originally published in Canada in 1961) was published by staunchly fundamentalist Craig Press, but Shute

accepts standard old-earth chronology, and said that Adam was predated by other hominids. Modern man appeared suddenly about 9,000 years ago, and Adam may have been the first of this new type of hominid, but Adam's descendants may have intermarried with the older, more primitive types. Shute, a Canadian surgeon who edited a medical journal, published articles in both *Nature* and the *Creation Research Society Quarterly*. His book, though strongly creationist, contains no biblical references, and is filled with scientific citations. He argues that scientific evidence proves a Creator and refutes mega-evolution, defending the proposition that "The biochemical probabilities of life are so infinitesimally small that life obviously could not have suddenly started up on its own. It must have been created" (1962:18). "Botanists and bacteriologists must be especially aware of this," he says. Botanists "persistently fail to find the genealogical connections between the great groupings of plants that the evolutionist must anticipate" (1962:1); bacteria and other simple organisms, which ought to evolve the fastest, show no evolution at all, claims Shute—only development of different strains. Shute also discusses, and dismisses, the standard biological evidence for evolution, including embryological evidence, vestigial organs, serology (biochemistry), and biogeography. He argues that parasite life-cycles, mimicry, interdependence of species, instinct, social insects, and many other examples of extraordinary adaptations refute evolution.

Don England, a chemistry professor at Harding University in Arkansas (a Church of Christ school), advocates old-earth creationism in *A Christian View of Origins* (1972) and *A Scientist Examines Faith and Evidence* (1983). He presents a number of creationist theories and variants, listing objections to each (1972:116-117). England doesn't commit himself to any particular view, but seems most sympathetic to the "multiple gap" view (also called the "intermittent day" theory: six literal days of creation, separated by long gaps).

In his later book, England argues that faith is not dependent on science, which changes. The Bible is scientifically and historically accurate, he affirms—it contains no bad science—but we shouldn't attempt to harmonize the Bible with science, or consider our own fallible interpretations of Genesis as absolute truth. He refutes most Bible-science "proofs," showing that the passages cited as Bible-science proofs are mostly intended to be poetic rather than literal. The realization that the science-in-the-Bible approach was misguided came to him, England says, when he read the Bible-science claim that Deut. 14:7, which classifies the hare among animals which chew their cud, anticipated the modern scientific discovery that rabbits eat their dung (they are "caecotrophs": bacteria in their lower gut break down some food components, but too late to be absorbed directly by the rabbit, so rabbits reingest some of their feces).⁴⁰ England lists the passages most commonly cited as Bible-science proofs, showing that most of them do not anticipate modern science at all. He does, however, state that a few such passages are genuine anticipations of modern science, such as use of quarantine for control of communicable diseases, and the Mendelian genetic laws (1983:144).

We should not take unwarranted liberties in interpreting Genesis (or any Bible text), warns England, citing the Day-Age Theory as an example of loose and unwarranted

⁴⁰ Jean Sloat Morton, among other Bible-scientists, cites rabbit caecotrophy as scientific confirmation of the biblical categorization of hares as "cud-chewers," in her *Science in the Bible* (1978). Morton is a member of the ICR Technical Advisory Board, and has written ICR *Impact* articles; her book has a Foreword by Duane Gish.

exegesis. Nor can we prove theories based on “silences” in Genesis, such as the Gap Theory or any of its variants, though we should take note of what the Bible does not say as well as of what it does. The Bible does not give us the age of the earth; there is no biblical reason to insist on recent creation or Flood Geology (though the earth may be young). The Bible, however, does refute evolution:

There is no way, allegorically or otherwise, by which the Genesis account of the origin of the first man and the first woman can be brought into harmony with modern theories on the origin of man as expressed in general biological evolution. [1983:156]

R.J. Berry criticizes both “Fundamentalists” (Morris, e.g.) and “liberals” (especially Teilhard) in *Adam and the Ape: A Christian Approach to the Theory of Evolution* (1975). He defends creation *ex nihilo*, but is not a literalist. Man has a long biological history, he says, but man (Adam) was also created theologically, perhaps in the Neolithic, when God endowed Adam with spirituality. In fact, Berry accepts evolution, thus making him a conservative theistic evolutionist, but his approach is quite similar to many old-earth creationists. “Widely quoted criticisms such as Kerkut or Moorhead and Kaplan,” he says, “are largely about details.” Evolutionist research will modify theories, but evolution itself will not be denied.

John Clayton advocates another old-earth variant—what his young-earth critics call a “modified gap theory,” though it also includes elements of Day-Age creationism. Clayton is an Indiana high-school teacher with geological training who gives a popular creation-science lecture series called *Does God Exist?*, which he has presented on many high school and college campuses;⁴¹ it is also available in film and video as a set of thirteen half-hour programs (1982). He also distributes and loans many other creationist materials. In his *Does God Exist?* series, Clayton describes how he converted from atheism to God because of scientific evidence (mostly evidence against evolution—especially the Design argument). He stresses that the films present scientific, not religious, evidence: “You haven’t heard any Bible-spouting here.” In Film 4, “Fossils and Genesis,” Clayton presents a modified Day-Age view.

In *The Source: Eternal Design Or Infinite Accident?* (1983; originally 1976), a book aimed at students, Clayton refutes recent creation as well as evolution. He argues that the Genesis order of creation is the same as the geological record, but also maintains that there were long ages before the six days of creation. However, he denies the standard Gap Theory, pointing out that there is no evidence for the global destruction it posits (1983:136-137). He proposes that the first few verses of Genesis precede by long ages the six-day creation, and that God created mankind *ex nihilo* on the sixth day, but that He also made use of materials and life-forms created in earlier ages, which had developed through these ages into an ecosystem able to support man and the other new forms.

Because of his old-earth views, Clayton denies being a member of the “creationist movement.” Strict creationists, returning the favor, have repudiated his interpretations as heretical compromises, especially fellow Church of Christ members Wayne Jackson and Bert Thompson. Jackson and Thompson’s *Evolutionary Creationism: A Review of the*

⁴¹ I first saw the film version at UCLA, shown by Campus Advance for Christ, a Church of Christ affiliated group. At that time (1984), a UCLA biochemistry graduate student at the Molecular Biology Institute was one of the group’s leaders.

Teachings of John Clayton (1979) is a strongly-worded refutation of Clayton's hybrid old-earth views. They attribute Clayton's views to his training in geology rather than the Bible.

Dan Wonderly provides convincing explanations of non-radiometric dating methods in *God's Time-Records in Ancient Sediments* (1977), his refutation of young-earth creationism. He discusses sedimentation layers, erosion features, deep drilling, and reef and coral formation as proof of earth's great age. Wonderly taught science in various Christian colleges, including Grace College. His book is an expanded version of an article which originally appeared in the *J. of the American Scientific Affiliation* in 1975, which was also reprinted in Newman and Eckelmann's 1977 book; Newman wrote the Foreword to the book version. Wonderly, besides offering scientific evidence for an ancient earth, also documents the opinions of early Christian authorities regarding the age of the earth. He praises Christian scientists who attempted to harmonize geology with the Bible, such as Hitchcock, Miller, Jamieson, Dawson and others. Though he presents both Day-Age and Gap Theory creationism favorably, he prefers the former. Wonderly urges that the distinction be made between evolution, which he rejects, and the age of the earth.

The separating of these two issues can be of untold value, both in promoting mutual understanding between Christians and in helping to present the Biblical account of creation to the public. For example, the gaining of respect for the Creation story in public education will be largely dependent on our showing that the Biblical account is compatible with the better known principles of earth science. (Most scientists will admit that the theories of evolution are not yet established fact, but the matters of age are far more certain.) Whenever we attempt to "throw out" both evolutionary theory and the established facts concerning the age of the earth, we will find unrelenting resistance. Public school teachers and pupils should be, and can be, alerted to the transitory nature of evolutionary theory if we will not at the same time deny the geologic evidences for age.

Let us hope that during the present decade Christians will determine to emphasize the fact that, even though the Bible is not a handbook of science, it is scientifically respectable. [1977:217-218]

Duane Thurman, an Oral Roberts University biology professor with a Berkeley Ph.D. in botany, maintains a calm and very reasonable-sounding tone in *How to Think About Evolution & Other Bible-Science Controversies* (1978), stressing the need for critical evaluation of arguments and detection of fallacies, and discussing scientific method and proper interpretation of evidence at length. He chides both creationist and evolutionist extremists for relying on unfair arguments and faulty logic. Evolutionists, he complains, use the "most extreme, least-known version of creation as representative of creationism in general." Thurman presents the pros and cons of various old-earth creationist theories, saying that he has "no firm choice." "The Bible is quite accurate and specific about some scientific matters," he states, but it does not deal with the "how" of creation.

The International Council on Biblical Inerrancy, founded in 1977, is resolutely creationist, but does not as a group insist on recent creation. The ICBI Council includes Gleason Archer, Norman Geisler, Jay Grimstead, and Moishe Rosen; its Advisory Board includes Blocher, Bill Bright, Criswell, D. James Kennedy, Francis Schaeffer, and many other well-known evangelists and theologians. *Summit II: Hermeneutics Papers* (1982), a volume from the 1982 ICBI conference, includes several papers advocating old-earth creationism. Only one contributor defends recent creation. Walter Bradley, co-author of *The Mystery of Life's Origin* (Thaxton, Bradley and Olsen 1984), urges old-earth creationism in the ICBI volume in "Trustworthiness of Scripture in Areas Relating to

Natural Science.” Archer, in “A Response to the Trustworthiness of Scripture in Areas Relating to Natural Science,” also endorses old-earth creationism. The lone dissenter is Henry Morris, who, in his “Response to the Trustworthiness [etc.],” holds out for strict young-earth creationism. In an appendix on the interpretation of the word “day” in Genesis, Geisler describes several types of creationism.

The ICBI distributes a tract *Inerrancy: Does It Matter?* (undated [1980s]), which includes excerpts from the ICBI “Chicago Statement on Inerrancy,” a set of affirmations and denials, which was signed by 250 Christian leaders. It is strongly creationist: “We deny that scientific hypotheses about earth history may properly be used to overturn the teaching of Scripture on creation and the flood.” ICBI also issued a similar “Statement on Hermeneutics” (reprinted in its catalog), which is also strongly and explicitly creationist.

Norman Geisler, a professor of systematic theology at Dallas Theological Seminary with a Ph.D. from Loyola University, was a defense witness at the 1981 Arkansas creation-science trial. Though he actively promotes creation-science, he is not a young-earth creationist, and has stated that the wording of the Arkansas bill, which defined creation as “recent,” caused unnecessary trouble. “Why provide [the evolutionists] with one more excuse to proclaim the creationists’ view religious (since many believe only the Bible teaches a young earth)?” (1982:20). *The Creator in the Courtroom: “Scopes II”* (written in collaboration with two of his Dallas Theol. Sem. Grad students, and with a Foreword by Duane Gish of ICR) is Geisler’s account of the trial. Geisler argues strenuously against the evolutionist plaintiffs, analyzing and denouncing their many legal errors and logical fallacies with Jesuitical rigor. Geisler also rebuts the accusation by Wendell Bird of the Creation Science Legal Defense Fund, who had hoped to lead the defense (he later defended the Louisiana bill before the Supreme Court), and John Whitehead of the Rutherford Institute, that Attorney General Clark mishandled the defense.

Bill Keith, president of the Creation Science Legal Defense Fund, former state senator and author of the Louisiana creation-science bill, aggressively defended his “balanced treatment” bill in *Scopes II: The Great Debate* (1982). Though vehemently anti-evolutionist (he calls it the “greatest hoax of the 20th century”), Keith is also an old-earth creationist, and objects to being lumped with the young-earthers. “Virtually all of the stories dealing with creation-science have said we believe the earth is only 6,000 years old. I don’t believe that and I’m the author of the creation-science law” (1982:79). Keith also includes a long section on the Arkansas trial, attacking the defense team as inept and ill-prepared, and chastizing them for not accepting help from the CSLDF, Bird, Whitehead, and Gish. He concludes with advice on how to influence the legislative and educational process to present creationism, urging creationist lobbyists to stress scientific evidences and avoid discussion of religious implications of creationism.

You too can join us in this great crusade for freedom of speech, freedom to know the truth and freedom from educational oppression and indoctrination. Creation-science is pure science and it belongs in the public school classrooms. Yet censors abridge it from the curricula. [1982:193]

In McDowell and Stewart’s book *The Creation*, Stewart says that either young-earth or old-earth creationism may be true (1984:44-45).

Pat Robertson, a strong supporter of creation-science, has hosted both old- and young-earth creationists on his *700 Club* TV show. (Former co-host Danuta Soderman once pointed out that a fossilized insect “millions of years old” looked exactly like modern insects, thus refuting evolution: this argument implies old-earth creationism.)

One scientist featured on the *700 Club* is Robert Gange, an electrical engineer at Sarnoff Research Center in Princeton, N.J. (he says he was “honored seven times” by NASA), and head of his own creation-science organization, the Genesis Foundation. Gange’s book *Origins & Destiny* (1986) promotes old-earth creationism, appealing to the Big Bang as the moment of Creation, the obvious Design of the universe, and such standard creationist arguments as the bombardier beetle (1986:38). His book has a back-cover blurb by Nobel laureate physicist Eugene Wigner, who applauds Gange’s anti-materialism. Gange states that “modern knowledge is vindicating the Bible archeologically, biologically, and anthropologically” (1986:152), and urges acceptance of its eternal truth.

The Intellectuals Speak Out About God (1984), a book edited by Roy Varghese and intended as a “theistic manifesto,” contains contributions by several old-earth creationists. Published by Regnery Gateway, a strongly conservative press, this volume, subtitled “A Handbook for the Christian Student in a Secular Society,” is dedicated to C.S. Lewis, and includes a Foreword by Ronald Reagan and a prefatory “Message from the Vatican.” Contributors include Geisler, McDowell, Charles Thaxton, Yale physics professor Henry Margenau, Robert Jastrow of NASA, Nobel laureate Sir John Eccles (a neurobiologist and a philosophical dualist), Rupert Sheldrake (former Cambridge University biochemist who advanced the theory of “formative causation” and “morphogenetic fields”), Chandra Wickramasinghe (Fred Hoyle’s co-author, and an anti-evolution witness at the Arkansas trial), historian of science Stanley Jaki, NYU psychologist Paul Vitz (recently famous for his study of the exclusion of the role of religion in textbooks), and a number of other philosophers and theologians. The scientist contributors oppose materialism and generally oppose Darwinian evolution. They appeal to Big Bang cosmogony as proof of the creation of the universe from nothing billions of years ago, the anthropic principle as demonstration of Design in the universe, and quantum mechanics as refutation of materialistic physics. Jastrow, founder-director of NASA’s Goddard Institute of Space Studies, says a naturalistic origin of life and evolution of man from lower animals is “plausible” but “not certain” (1984:20). (In his popular books, Jastrow has convincingly presented the evolution of the universe, and the succession of life-forms on earth, but has grown skeptical of naturalistic evolution.) In his chapter “Science and the Divine Origin of Life,” Wickramasinghe denounces evolutionists as “arrogant, dogmatic people” who “hold absolutely tenaciously to a point of view which has become a theological issue” (1984:31). He agrees with Varghese that Darwinism is “fatally flawed,” and expresses his support for the creationists, though stating that young-earth creationism is wrong. Other contributors as well chide the young-earthers for making creationism appear unscientific.

Charles Thaxton, one of the contributors to this volume, is also co-author of *The Mystery of Life’s Origins: Reassessing Current Theories* (Thaxton, Bradley and Olsen 1984), a knowledgeable critique of origin-of-life experiments and theories. Thaxton, who has a chemistry Ph.D. from Iowa State University, is now director of curriculum research at the Foundation for Thought and Ethics in Richardson, Texas, an organization which

promotes presentation of a theistic world-view in science teaching and textbooks. Co-author Walter Bradley is a professor of mechanical engineering at Texas A&M University; Roger Olsen has a Ph.D. in geochemistry from Colorado School of Mines.

The book's Foreword is by Dean Kenyon, a San Francisco State University biology professor who converted to creationism and who wrote the Foreword to Morris and Parker's *What Is Creation Science?* (1982), and supported the Louisiana creation-science bill with an affidavit. (Wilder-Smith, in his "Great Debate: Evolution or Creation" tape from Firefighters from Christ, claims that Kenyon converted to belief in God and creationism after a student gave him a copy of Wilder-Smith's 1970 book, and then converted to Christianity [i.e. fundamentalism] after reading Wilder-Smith's 1975 book. I have also heard that the student upheavals of the 1960s affected Kenyon's conversion.)

Thaxton, Bradley and Olsen do not question the accepted age of the earth and the succession of life-forms over the ages, but argue that origin of life by random, purely naturalistic processes is fundamentally implausible and "probably wrong." In their "Epilogue," they urge consideration of supernatural causes in scientific explanation. Alternatives they consider are "special creation by a Creator within the cosmos" (Hoyle and Wickramasinghe's position), and—the position they favor Themselves—"special creation by a Creator beyond the cosmos." They argue for a sharp distinction between what they call "operation science," which is the testing of normal, recurrent phenomena, and "origin science," which deals with singular and non-repeatable events, such as the origin of life. The "God Hypothesis," they claim, is illegitimate in "operation science" but is perhaps necessary for origin science.

Jim Brooks, an oil explorationist with Britoil in Glasgow, Scotland and a vice-president of the Geological Society, supports a form of old-earth creationism in his book *Origins of Life* (1985). He fully accepts—indeed he emphasizes—the geological ages and the standard chronology of the fossil record in this handsomely illustrated book and scientifically knowledgeable book, but also insists that the Bible "gives a true account of God's creation of the Universe, of the Earth, of living things and of mankind in his place among them" (1985:148). Brooks supports the Big Bang theory, but cautions that it cannot be used as proof of God and Creation. Such attempts he criticizes as a "God-of-the-gaps" approach: assertions that God must be the explanation in areas where scientific knowledge can provide no other explanation. This God-of-the-gaps approach is a "wrong and pathetic substitute for the infinite, all-powerful God of the Bible," he insists (1985:40). Brooks seems to prefer a revelatory or framework interpretation of creationism.

Glenn Morton, the geophysicist who has worked many years in the petroleum industry, has written many articles for the Creation Research Society, and was ghost-writer for the evolution sections in McDowell and Stewart's book *Why Skeptics Ought to Consider Christianity* (1981). Morton describes himself as a "middle-earth" creationist: he wants the earth to be as young as possible for biblical reasons, but his experience in petroleum geology has convinced him that it must be more than several thousand years old, and that Flood Geology and the Water Canopy theory are wrong. In *The Geology of the Flood* (1986), Morton, who insists that "If evolution is true, then the Bible is wrong," attempts to reconcile geology with the Bible by proposing a single miracle: at the time of the Flood, God increased the "permittivity" of free space. This caused atoms to move

apart, some expanding more than others. Earth's radius doubled, and the land masses split apart (this, rather than plate tectonics, explains the continents). Differential expansion of various materials accounts for geological features such as earthquake zones and thrust faulting (Howe 1987). Creation occurred about 125,000 years ago. The Flood began some 30,000 years ago; Noah's Ark landed after a year, but effects of the Flood lasted about 5,000 years. Most of the paleontological record is the result of these thousands of years of post-Flood re-inundations and other adjustments. These account for fossil sequences not adequately explained by standard Flood Geology. As he explains in another paper (1986a:141):

Noah and the animals left the ark while Cambrian strata were being laid down. They would have had to live on a stable highland for several centuries while the geologic effects of the flood continued below them. As the animals repopulated the earth and spread out from their initial center, they were vulnerable to all the vicissitudes of their turbulent world. They would inhabit areas that for the moment were secure only to have some regional catastrophe bury them thus making them fossils. The more rapidly animals reproduced, the more rapidly they would spread out and thus the more probable that they would be caught in one of these disasters. This would lead to the expectation that we should find the different groups in the fossil record based not upon hydrodynamic sorting and mobility [as in Morris's Flood Geology] but based upon their reproduction rates. In point of fact this is precisely the order in which fossils appear in the geologic column.

Morton's theory, though it involves "only" one extra miracle, is nevertheless an example of an extra-biblical proposal made solely in order to reconcile a literal interpretation of Genesis with science. As discussed earlier, the Bible itself suggests no hint of Morton's post-Flood convulsions.

Kurt Wise, an old-earth creationist paleontologist who worked under S.J. Gould as a doctoral student at Harvard, and who has just accepted a teaching position at William Jennings Bryan College in Dayton, Tennessee, is openly critical of young-earth arguments and Flood Geology. He expressed these criticisms at the 1986 Creationist Conference, for instance, in "How Fast Do Rocks Form?" and "The Way Geologists Date" (1986a, 1986b).

REGIONAL FLOOD THEORIES

Besides old-earth creationism, which strict creationists view as heresy, many creationists also have refused to endorse Flood Geology. Many, in fact, maintain that the biblical Flood did not inundate the entire globe, but only a portion of it (though perhaps the entire portion then inhabited by man). Modern Flood Geology was resurrected by George McCready Price and popularized by Henry Morris and his school; the acceptance of geological uniformitarianism had caused the demise of classical Flood Geology in the previous century.

Edward Hitchcock, the Amherst College geologist, though he was a Gap Theory believer and a dedicated proponent of the harmony between geology and Genesis, was at the same time a uniformitarian of sorts: he admired Lyell but also stressed the changing intensities of forces in geology, such as glaciation and flooding. In *The Historical and Geological Deluges Compared* (1837), he wrote that Noah's Flood affected the upper geological strata only, and was not responsible for deposition of lower sediment layers (just as Buckland had argued in *Reliquiae Diluvianae*). In *Elementary Geology*, his best-

selling textbook (1841, with editions up to 1871), Hitchcock continued this theme, explaining that sedimentary layers are far too deep to all have been the result of the Flood, and many layers were deposited in quiet waters (quite unlike the biblical description of Noah's Flood). Most fossils are of pre-human forms no longer in existence, and thus must have been deposited before the biblical Flood, which occurred in human times.

Fossils are not promiscuously thrown together, as in a single violent catastrophe, he wrote in *The Religion of Geology*; fossilization is a "quiet and slow process." "[T]he manner in which the fossils are arranged, and especially the preservation of the most delicate parts of the organic remains, often in the very position in which the animals died, show the quiet and slow manner in which the process went on" (1851:54). Fossils are generally found near where the organisms lived, "arranged, for the most part, in as much order as the drawers of a well-regulated cabinet." The paleontological record shows at least five distinct periods of life on earth, each characterized by distinct and independent sets of organisms. The biblical Flood itself left no mark in the geological record. Hitchcock refutes the various theories (by Burnet, Woodward, Scheuchzer, Catcott) that the Flood dissolved the surface of the earth, and that it can be used to explain fossil deposits generally (1851:114ff); he also politely refutes Kirby's similar explanation in his *Bridgewater Treatise*.

The Flood may have been regional rather than global, Hitchcock argued. "There are reasons," he wrote (1851:126), "both in natural history and in the Scriptures, for supposing that the deluge may not have been universal over the globe, but only over the region inhabited by man."

If we suppose the limited region of Central Asia, where man existed, to have been deluged, and pairs and septuples of the most common animals in that region only to have been kept alive in the ark, the entire account will harmonize with natural history. [1851:132]

Hitchcock quotes Dathe and (even earlier) Matthew Poole, who suggested that there were no biblical reasons for insisting that the Flood was global, and that a flood inundating the Near East would likely have obliterated all of mankind. Following Pye Smith, Hitchcock hypothesizes that a temporary uplift of the bed of the Indian Ocean by volcanic action could have caused a submergence of the Near East (1851:138-139). He also suggested that the Ark landed in Babylonia rather than Mt. Ararat in eastern Turkey, since Ararat is too high to have been submerged in such a regional flood.

John Pye Smith, who wrote the Introduction to Hitchcock's *Elementary Geology*, was a strong advocate of a regional Flood. It was by extending this idea to the six-day creation that Pye Smith produced his Gap Theory variant of a "regional" six-day re-creation in western Asia following its destruction by God, in *On the Relation Between the Holy Scriptures and Some Parts of Geological Science*. Whitcomb and Morris refer to Pye Smith often in *The Genesis Flood*, criticizing his non-literal approach and "tranquil Flood" theory. The 5th edition of his book, they complain, contains 60 pages of arguments (1854:109-149; 264-283) against a global Flood (Whitcomb and Morris 1961:107).

Hugh Miller also argues for a regional Flood in *Testimony of the Rocks*. After describing Flood myths from around the world, he notes that "The tradition of the Flood may, I repeat, be properly regarded as universal" (1857:299). But, he continues, this does

not mean that the Flood itself was global. Assuming only Noah and his family survived, all present humans, no matter how widely dispersed, must be descended from them, regardless of the extent of the Flood. Miller presents geological and other arguments against a worldwide Flood. A further objection is that a global Flood would have required an “enormous expense of miracle” by God: “all the animals preserved by natural means by Noah would have had to be returned by supernatural means to the regions whence by means equally supernatural they had been brought” (1857:347).

Robert Jamieson in the *Jamieson, Fausset and Brown Bible Commentary* (1871), follows Hitchcock and Miller in advocating a regional Flood which destroyed all mankind (then limited to the Near East).

The Duke of Argyll, in *Primeval Man*, states:

That the Deluge affected only a small portion of the globe which is now habitable is almost certain. But this is quite a different thing from supposing that the Flood affected only a small portion of the world which was then inhabited. [N.d.:91-92]

The great antiquity of Chinese and other civilizations argues against the traditional understanding of Noah’s Flood, he points out. If the Flood, though not global, indeed destroyed the inhabited world, then it must have been a lot earlier than usually supposed. Argyll, not a strict creationist, concludes that “the difficulty of reconciling the narrative of Genesis with an indefinitely older date is a very small difficulty indeed, as compared with the difficulty of reconciling it with a very limited destruction of the Human Race” (n.d.:92-93).

J.M. Woodman, though he promoted the old Neptunist (Flood) theory, did not claim that all of earth’s geological formations were deposited by Noah’s Flood alone, but in earlier ages. In *God in Nature and Revelation*, he wrote that Noah’s Flood, caused by a tilt in the earth’s axis, consisted of great tidal currents. Asia, Europe, and North Africa were submerged by trapped waters from these currents, but animal life in other regions survived.

Pierson (1886:124-126) discusses a theory advanced by Haywood Guion in which the pre-Flood world consisted of a solitary continent rising dome-like out of the seas, with a uniform topography and climate. At the time of the Flood, this dome was shattered by vulcanism and earthquakes, and its roof collapsed into the ocean, becoming the bed of the Pacific Basin.

Sir J.W. Dawson, according to Ramm (1954:163), “sternly rejects a universal flood” in *The Meeting-Place of Geology and History* (1894). Dawson did not even suppose that the Flood covered all areas inhabited by man. “Rather, he adopts the view we have expounded,” says Ramm, “that the deluge was universal *in so far as the area and observation and information of the narrator extended.*” Likewise, the Table of Nations in Genesis concerns only the descendants of Noah’s sons and does not say anything about other people who may have survived the Flood. It concerns one series of migrations from Mesopotamia, and says nothing about other peoples in other areas. Despite this denial of the Flood’s universality, even for man, Dawson insisted on its great significance. The Flood, which Dawson thought was caused by subsidence of land occurring some time after the Ice Age, marked the division between primitive and modern man. In *The Historical Deluge in its Relation to Scientific Discovery and to Present Questions* (1895), Dawson stated: “The Deluge thus becomes one of the most

important events in human history; so that any attempt to discuss the history of primitive man, or his arts or his religion, without reference to this important factor, must necessarily be fallacious.”

Patrick O’Connell, like Dawson, believed there was only one Ice Age. In *The Deluge and the Antiquity of Man* (Book II of *Science of Today and the Problems of Genesis*, O’Connell explains that science shows there was a definite “hiatus”—a break between older and more modern types of mankind—at the close of the Ice Age, around 7000 B.C., between the Mousterian and Aurignacian periods (1969:(II) 16-17). This hiatus was the Flood. He states that this date is confirmed by evidence from Jericho and many other sites, and cites data from Scandinavian glacial varves which suggest a date of 6839 B.C. The Siberian mammoths were drowned in the Flood. The Flood was not worldwide, but did include all areas inhabited by man, covering most of Europe, North Africa, and much of Asia and North America. Neanderthals were a degenerate pre-Flood race—hunters descended from Cain. Though all mankind perished except for those aboard the Ark, not all animals died. O’Connell describes the impossibilities of a global Flood, such as the lack of space aboard the Ark for all animal species.

Frederick Filby, a professor of inorganic chemistry in England, expounded his regional Flood interpretation in *The Flood Reconsidered*. Filby, a progressive creationist, explained in an earlier book, *Creation Revealed: A Study of Genesis Chapter One in the Light of Modern Science*, that the six days of Genesis are not entirely consecutive. The creation ‘days’ refer to the “six great topics which finally lead up to the coming of man and the completion of God’s work,” and they may overlap chronologically. The sun and moon, for instance, were in existence since the beginning of creation, but are described in Genesis as being “created” on the Fourth Day, since that is when they fulfilled their primary purpose.

Filby, who says the age of man began some 15,000 years ago, considers the existence of pre-Adamic and “co-Adamic” men likely. Adam and Eve were specially endowed by God and placed in Eden, at some time during the Stone Age, but other humans had preceded them, and perhaps existed contemporaneously with them outside of Eden (1964:145). If these non-Adamic men did not die out by Adam’s time, they certainly became extinct as a result of the Flood. The biblical nephilim may have been offspring of the mating of humans with co-Adamic beings whose bodies were possessed by demons (fallen angels). Considering this possibility, Filby says: “Such a corruption of the human race could only be dealt with by the destruction of those who had so degraded the race. Hence the Flood” (1964:149).

In *The Flood Reconsidered* (1970), Filby describes Genesis as a “sober, historical account.” The Flood, which occurred 4000-3500 B.C., inundated Asia and Europe; it was not worldwide, but it was more than a local Mesopotamian flood. Filby rejects Whitcomb and Morris’s Flood Geology, calling it “absurd.” He prefers Donald Patten’s theory, in *The Biblical Flood and the Ice Epoch* (1966), of a close comet or planetary fly-by which caused a tidal Flood.

R. Laird Harris suggests that the Flood occurred in conjunction with a radical change of climate, manifesting itself as rainstorm in Mesopotamia and a snowstorm in Siberia.

Such a flood would explain the Siberian mammoths and the death of all living men outside the ark and yet it would allow for the preservation of the bones and artifacts of the antediluvian men.

If such a reconstruction of the history of the flood could be accepted, it would fit beautifully with a date of the flood at about 9000 B.C. and the beginning of city life in various places in Mesopotamia by about 7000 B.C. [1971:85-86]

John Warwick Montgomery believes the Flood was regional rather than global, but insists in *The Quest for Noah's Ark* that the Ark landed atop Mt. Ararat, and is still to be found there. Montgomery boasts of seven earned degrees (I heard one former colleague say he used to describe himself as having “more degrees than a thermometer”), including a theology doctorate from a French university, and a “Doctorate in Philosophy from the University of Chicago” (1974:6). (This is misleading. His Chicago doctorate is actually a Ph.D. in bibliographic history. Two of his other degrees were in library science from UC Berkeley; his other graduate degrees are in theology. He has since earned another degree in England, in law.) He was an Honorary Fellow of Revelle College, UC San Diego, in 1970. Montgomery converted to Christianity while a philosophy major at Cornell as a result of discussions with Herman Eckelmann (Robert Newman's 1977 co-author), who was then an engineering student (James Moore 1973:290). Montgomery has written 38 books, and recently founded Simon Greenleaf School of Law in Anaheim, California, a “Christian” law school.⁴² (A Lutheran minister, Montgomery espouses biblical inerrancy, but professes a “confessional” theology rather than strict fundamentalism.)

In *The Quest for Noah's Ark*, Montgomery reprints excerpts from Hugh Miller (1857), Filby (1971), a *CRSQ* article by Henry Morris, and from most of the well-known accounts of the search for the Ark, plus an account of his own ascent of Ararat. He also reprints a 1974 address he gave to the International Symposium on Remote Sensing at the University of Michigan, in which he discussed the use of satellites for discovery of the Ark, and a Feb. 21, 1974 news release by Utah Senator Frank Moss. Moss, then chairman of the Senate Aeronautical and Space Sciences committee, endorsed Montgomery's claim that Noah's Ark could be discerned in an ERTS (LandSat) photo of Ararat. (John Morris, Henry Morris's son and leader of the ICR's Ark expeditions, rejects the LandSat claims [LaHaye and Morris 1976:205-206]. Strict Flood Geology creationists such as Henry Morris are amazed that Montgomery can insist that the Ark is to be found atop Ararat while maintaining that the Flood was only regional.)

Maurice Bucaille, the Islamic creationist, writes: “Whereas the Bible describes a universal Flood intended to punish ungodly humanity as a whole, the Qur'an, in contrast, mentions several punishments inflicted on certain specifically defined communities” (1983:216). One such community was Noah's.

Ronald Youngblood argues for a regional Flood in *How It All Began* (1980), and discounts the claim that the Ark can be found on Ararat.

In *Noah's Flood, Joshua's Long Day, and Lucifer's Fall*, Ralph Woodrow advocates a regional Flood, refuting claims of a global Flood with several chapters worth of scientific and other arguments. He states that belief in a worldwide Flood violates a literal interpretation of the Bible by having to presume a much earlier date for the Flood than does belief in a regional Flood. Whitcomb and Morris, he notes, have to assume

⁴² Montgomery resigned as Dean of Simon Greenleaf in 1988, following a scandal involving charges of unethical behavior regarding his leadership and serious allegations concerning the circumstances of his divorce and remarriage. He plans to found a new Institute for Theology and Law.

there are genealogical gaps in Genesis, and that the Flood occurred several millennia before Abraham.

The regional flood viewpoint, on the other hand, can leave the years from the flood to Abraham exactly as they are—without gaps or guesses—allowing that only part of the world’s population was destroyed. This provides a satisfactory explanation for the existence of developed civilizations only a few generations after the flood at the time of Abraham. [1984:57]

BIBLICAL CREATIONISM VERSUS SCIENTIFIC CREATIONISM

Very many creationists today (especially the most politically active) insist that there is an important distinction between “scientific creationism” and “biblical creationism”—though both, they maintain, are completely consistent with each other, and both are equally true. “Scientific creationism” (the argument goes) consists of non-religious scientific evidence against evolution, which thus supports creationism. “Biblical creationism” is creationism which openly retains its religious origins; it consists of arguments against evolution based on a fundamentalist interpretation of the Bible.

This distinction has been given its definitive and most authoritative form by Henry Morris and his Institute for Creation Research. Quoting from the *ICR Graduate School Catalog* (though these definitions appear in many other ICR publications):

...ICR [is] committed to the tenets of both scientific creationism and Biblical creationism as formulated below. A clear distinction is drawn between scientific creationism and Biblical creationism but it is the position of the Institute that the two are compatible and that all genuine facts of science support the Bible. ICR maintains that scientific creationism should be taught along with the scientific aspects of evolutionism in tax-supported institutions, and that both scientific and Biblical creationism should be taught in Christian schools. [1985:12]

(See also Morris’s “The Tenets of Creationism” (1980), in which he defines Scientific, Biblical, and Scientific Biblical creationism.) In summary, “scientific” creationism consists of scientific evidence refuting naturalistic origin of life from non-life, evolution of major “kinds” of organisms, evolution of man from non-humans; plus evidence for recent creation of the earth and catastrophism in earth history, especially a global flood. Scientific creationism refers to a “Creator” as a necessary scientific tenet. “Biblical” creationism affirms the God of the Bible, a recent, literal six-day creation, Satan, Adam and Eve, Noah’s Flood, and redemption through acceptance of Christ.

In a 1979 ICR “Impact” article (*Acts & Facts* insert) on how to get creationism into public schools, Wendell Bird added this “word of caution”:

Creationists working to introduce creation into public schools must distinguish sharply between scientific creationism and religious creationism. Scientific creationism consists of the scientific evidences for creation, while religious creationism consists of the Biblical doctrines of creation. Scientific creationism can be taught in public schools, while religious creationism cannot under current law. Creationists approaching public schools must avoid reference in discussions, resolutions, or classroom materials, to the Bible, Adam, the fall, or Noah, except in showing that evolution is wholly contrary to the religious convictions of many individuals. [1979a:iii]

A well-known presentation of this distinction is the ICR textbook *Scientific Creationism* (1974), edited by Morris (Morris elsewhere says he wrote the “basic text,” though it is officially credited to the ICR staff). It comes in two versions. The “Public

School Edition” consists solely of “scientific creationism”; the “General Edition” adds an extra chapter, “Creation According to Scripture,” which presents “biblical creationism.”

George McCready Price was the first creationist of the modern era to develop an entire package of “scientific” creationist theory, including modern Flood Geology and young-earth arguments. Some of his books contained no biblical references, such as his creationist geology textbooks (1923, 1926), while others openly called for a return to the Bible and preached that evolution was wrong because it contradicted the fundamentalist interpretation of Genesis. During the period of fundamentalist activity in the 1920s, most fundamentalists openly declared that their opposition to evolution, though supported by “true” science, was based on their biblical belief, and that evolution should not be taught because it contradicted the Bible.⁴³

This attitude continued until the popular re-emergence of creationism starting in the 1960s. The 1968 *Epperson* Supreme Court decision, which struck down the Arkansas law banning the teaching of evolution, was the final defeat of this fundamentalist strategy of seeking to outlaw evolution on openly religious grounds. Even before this decision, creationist leaders had shifted their strategy: they now sought merely “equal time” for creationism. This strategy also was rebuffed in the courts, notably in the 1975 *Daniel v. Waters* decision which struck down a Tennessee law mandating equal time for Genesis. The third strategy was to demand “equal time” or “balanced treatment” for scientific creationism or “creation-science,” which was held to be entirely non-religious (or at least no more religious than evolution).

These attempts are well-known. In this decade “equal time” bills were introduced in many states, most of them modelled after ICR’s sample resolution (ICR 1979) drafted by Wendell Bird, then ICR staff attorney (the ICR leadership, though, continues to state that it does not favor coercive legislation, since it carries the risk of legal defeat). As Bird expressed it in his ICR article (1979a:iv):

We are not trying to bring the Bible or Genesis into public schools. We are not trying to exclude evolution from public schools, unless creation is also excluded. We are asking public schools to be neutral between theories of the origin of the world, life, and man, and to give academic freedom of choice to students between these theories.

We are asking public schools to present the scientific evidences for creation along with the scientific evidences for evolution.

Bird developed the legal arguments for this third approach—the same arguments he used before the Supreme Court in 1986 (after being deputized by Louisiana to become the lead attorney in the case)—in articles in the *Yale Law Journal* (1978)⁴⁴ and the *Harvard Journal of Law and Public Policy* (1979b). This strategy, though it remains extremely popular, has of course also suffered defeat: in the 1982 McLean decision, in which a Federal district court struck down the Arkansas creation-science law, and the 1987 Supreme Court *Aguillard* decision which struck down the 1981 Louisiana creation-science bill.

⁴³ Or, if taught at all, only as a false theory. In *Another Look at Evolution* (1964:4), Gordon Wilson says: “evolution should indeed be taught in public schools, but as the unproven hypothesis that it is, with due warnings given the students of the dangers accompanying the theory. It should be taught in the same way that Communism should be taught: as one political theory which is not acceptable to informed Americans.”

⁴⁴ Written when Bird was a Yale Law student, under the supervision of Robert Bork, then a Yale Law professor.

Some creationists, however, oppose the notion of a sharp distinction between “scientific” and “biblical” creationism. Kofahl and Segraves of the Creation-Science Research Center, though they subtitle their (1975) creationist textbook “A Scientific Alternative to Evolution,” and present the standard creation-science arguments, do not attempt to divorce “creation-science” from its biblical basis. This is in line with CRSC policy, which pursues a strategy not of equal time for “scientific” creationism, but of protection of the religious rights of students who believe in (biblical) creation.

Walter Lang, founder and former leader of the Bible-Science Association, also objects to divorcing biblical from “scientific” creationism:

Even in Christian and creationist circles the statement is repeated that the Bible is not a book of science, rather it is only some imaginary book of faith. Some creationists are trying to get into the public schools and to move the courts to require that creation also be taught in the public schools. However, they wish to prove that creation is science, apart from the Bible, just from nature alone rather than to demonstrate how truly religious and pagan the mega-evolutionary picture of science really is. In the public schools today, the big issue is that anything Christian cannot be science... [1986:6]

Rather than de-biblicize creationism, science should be *re*-biblicized, according to Lang. “The main purpose of science is to ‘subdue’ the earth,” as Genesis mandates. “The main controls should be the moral ones,” as defined biblically. And, “Research should first of all be based on God’s infinity—rather than, on falsifiability or testability” (1986:7).

Lang, who promotes “Creation evangelism,” emphasizes, rather than denies, the connection between biblical and scientific creationism. In a 1985 lecture to the San Fernando Valley BSA chapter, Lang said that of the perhaps five thousand people he knew who converted from evolution to creationism, not more than three or four said they converted because of the scientific evidence. Rather, they first converted to Christianity (fundamentalism), and only then discovered that evolution must not be scientific. So, asks Lang, why waste so much time on merely scientific evidence, if people are converted, for religious reasons, to biblical creationism first?

John Whitcomb, Morris’s *Genesis Flood* co-author, has expressed concern about a purely “scientific” creationism. He warns that science must not be considered on a par with biblical truth. In this respect he implies that Morris and his followers, in claiming that science alone can prove the truth of creationism, risk doing just that. Whitcomb has explicitly denied the “Double-Revelation” theory in various books and publications on astronomy and earth history written since *The Genesis Flood*, notably *The Origin of the Solar System: Biblical Inerrancy and the Double-Revelation Theory* (1975; originally published in 1963 and based on a 1962 Moody Bible Inst. lecture). The Double-Revelation holds that God’s truth is revealed equally in His “two books”—Nature and the Bible, and that the theologian must yield to the scientist in the interpretation of nature. Whitcomb rejects the approach that science and religion deal with different realms of truth, and insists that biblical truth must always be accorded primacy, in whatever realm. Absolute primacy must be given to the Bible, even when scientific theories contradict the Bible. God does reveal Himself in nature, but many truths remain outside of scientific investigation, especially one-time supernatural acts of creation. The Bible is God’s “special revelation”; nature is His “general revelation,” which, due to the Fall and the corruption of sin, is inherently inferior.

The most serious creationist opposition to the ICR-style divorce of “scientific” from “biblical” creationism comes from strongly Calvinist groups such as Christian

Reconstructionists and others who similarly emphasize presuppositional apologetics and post-millennialist eschatology, discussed later. One of the sharpest attack has come from John Robbins, head of the Trinity Foundation in Maryland. The Trinity Foundation promotes the teachings of Gordon H. Clark, a Calvinist philosophy professor. Clark declares that empirical science can prove nothing, and that truth can be derived only from the Bible. Such biblical truth, according to Clark, has exactly the same absolute status as proof in pure logic. Clark's *The Philosophy of Science and Belief in God* (1964) was published by Craig Press; in *The Biblical Doctrine of Man* (1984), he addresses evolution directly. The Bible, which is inerrant, "definitely asserts" the special creation of Adam and Eve. The most vigorous attack on this absolute truth has come from evolutionists, who must rely on "governmental compulsion" to impose their theory in the classroom. "This method of legal repression may be subconsciously supported by the suspicion that scientific theories are tentative only" (1984:2).

Robbins, Clark's disciple, likewise insists on a purely biblical creationism. He considers "scientific" creationism—creationism that is sterilized of overt religious reference—to be cowardly surrender to the secular anti-Christian forces. Robbins expressed this quite explicitly in his address "The Hoax of Scientific Creationism" delivered at the 1987 Baltimore Creation Fellowship Conference (and published in his *Trinity Review*). He agrees with anti-creationists that so-called "scientific creationism" is a fraud and a deception. To pretend that creationism consists of scientific evidence and is not a religious concept is a shallow, devious tactic doomed to failure. Robbins is appalled that Wendell Bird, in an attempt to pass off creationism as merely science, declared to the Supreme Court that creation-science need not contain any concept of God or the Book of Genesis. Not only are the "scientific creationists" trying—unsuccessfully—to con the judges, they are conning Christians into supporting a movement that is "hostile to Christianity": that betrays its very principles.

It is past time for Biblical Christians to consider whether they ought to continue to spend thousands of dollars on such specious arguments, and, more importantly, whether Christians can any longer afford to use a method of defending the faith that inexorably leads to non-Christian conclusions.

It has taken only a decade for Biblical creationism to turn into scientific creationism. Many Christians are not yet aware of the change. The scientific creationists have a pecuniary interest in keeping them uninformed of the charge. But the ramifications of the change are extensive, and its implications are lethal. Once the axiomatic acceptance of Scripture as inerrant is abandoned, the surrender to paganism is sure and swift. The Bible and the Bible alone is the source of truth. It is in the Bible alone that we read about creation. Neither science nor Aristotle [he accuses Geisler in particular of Aristotelianism] has anything to say about it. Science is ever learning and never able to come to the knowledge of truth.

Let us therefore, as Biblical creationists, stop funding and supporting the scientific creationists and return to our divinely commanded duty of building Christian schools, publishing Christian books, and preaching the whole counsel of God to every creature. And let those who call themselves Christians return to the faith they profess and defend it as it ought to be defended: as God's truth, and nothing less. [1987:6]

Scientific creationists are wrong, declares Robbins, in trying to prove creationism true by means of science and not the Bible. Christians must begin with the prior ("axiomatic") belief that the Bible is true and work from there. This is the "presuppositional" apologetics developed by Cornelius Van Til and championed by Rousas Rushdoony and the Christian Reconstructionists. Our presuppositions—which are either biblical or non-biblical—determine the way we interpret the facts of science and history. To try to prove the existence of God or the truth of the Bible is blasphemy,

asserts Rushdoony; these “foundational” truths must be pre-supposed. Creation-science, say both Robbins and Rushdoony, is guilty of relying on “evidentialist” rather than presuppositional apologetics: of assuming, falsely, that scientific evidence could prove Genesis.

Henry Morris responded to Robbins’ attack in “Is Creationism Scientific?” by arguing that “creation-science” is the only type of creationism that would be allowed in public schools.

Those “scientific creationists” who wrote and defended the Louisiana bill may have been mistaken in thinking that such a de-Biblicized law would be upheld by the federal judiciary, but they knew that no other approach stood any chance at all. [1987:1]

He chastised Robbins for claiming that creationism, and the Bible, must be believed by “blind credulity,” since the real facts of science support it (1987). It is ironic that Morris is accused of neglecting the Bible in his promotion of scientific creationism; this charge must be particularly galling to such a staunch fundamentalist, and explains why Morris pushes his biblicism so relentlessly when he can to audiences of the faithful where he can safely promote “biblical” creationism. After asserting that “scientific creationism is perfectly compatible with Biblical creation” in his response to Robbins, Morris adds that biblical creation, “of course, is of higher priority to the true Christian” (1987:4). In a later book, Morris states that “true biblical creationism is the answer to all human needs and problems” (1988b:129).

The rejection by Robbins and Rushdoony of “evidentialist” apologetics is a significant departure from the traditional fundamentalist view of science: the Baconian-Newtonian ideal of pure inductivism and its attendant horror of speculative hypotheses; the Common Sense philosophy of the Princeton theologians, which assumed that nature, like the Bible, was utterly *perspicuous* and accessible to ordinary reasoning, by observation and arrangement of facts. The Princeton theologians, who developed the doctrine of biblical inerrancy, in effect denied presuppositional apologetics by claiming that Christianity could stand solely by its appeal to reasoning from facts—facts, and reason, available to believer and non-believer both. Marsden says that Benjamin Warfield was “mystified” by the Calvinist approach, which presumed that, by starting from different presuppositions, non-Christians could never reason their way to the same conclusions as Christians, and quotes him as saying that Christianity, the “Apologetic religion,” will “reason its way to its dominion” (1980:115).

Hodge had, as Barr notes, “unbounded” confidence in reason. Hodge rejected rationality which was not based on scriptural revelation, but declared that “Reason must judge of the Evidences of a Revelation”: reason was necessary and sufficient for acceptance of biblical truth. He maintained that “reason must judge of the evidence by which a revelation is supported” (Hodge 1883:53). It is “clearly a prerogative of reason” to judge the truthfulness of Scripture: the Bible “never demanded faith except on the ground of adequate evidence.”

It will be noted that the ostensibly non-religious “scientific” creationist approach criticized by Rushdoony is in large part derived from Hodge’s Princeton Theology, and that both Rushdoony (via Van Til and Kuyper) and the Princeton theologians laid claim to the Calvinist tradition. Rushdoony’s Orthodox Presbyterianism, and the Dutch Reformed theology of the Cosmonomic Movement (a direct descendant from Kuyper via

Dooyeweerd), seem to lie more squarely within the original spirit of Calvinism, however, than does Hodge's appeal to reason alone.

POST-MILLENNIALISM AND CHRISTIAN RECONSTRUCTIONISM

Presuppositional apologetics is one of the key doctrines of the Christian Reconstruction movement; others are post-millennial eschatology, and a radical form of theonomy ("God's law"). Christian Reconstructionists reject the dispensational pre-millennialism which has been a mainstay of twentieth-century fundamentalism, claiming that it results in a pessimistic and fatalistic outlook on earthly existence. Post-mills believe that Christianity will triumph over the world, and that Christians will take over, eventually ushering in the Millennium through their successful efforts at reconstructing society. Rejecting the dispensational view that the Old Testament "dispensation" or covenant no longer applies to mankind, Reconstructionists believe that Old Testament law is still valid: their reconstructed Christian society will be a strict Old Testament theocracy. They stress that biblical principles must be applied to government and to all other fields, including science, and they urge Christians to "take dominion" over mankind as well as over the earth, and reconquer the world for Christ. The titles of many Reconstructionist books indicate this aggressive Dominion optimism and activism: J. Marcellus Kik's *An Eschatology of Victory* (1971), David Chilton's *Paradise Restored: An Eschatology of Dominion* (1985), John Jefferson Davis's *Christ's Victorious Kingdom: Postmillennialism Reconsidered* (1986), Robert Thoburn's *The Christian and Politics* (1984), Gary North's *Unconditional Surrender: God's Program for Victory* (1981).

Reconstructionists accuse pre-mills of passivity and fatalism; of abandoning hope that the world can be wholly converted and of waiting instead for the return of Christ and the Rapture; of relying on scare tactics for superficial conversions—getting people to accept Jesus simply in order to escape Hell; of only caring about counting souls nominally saved, and of not being concerned with building a truly Christian society because of their belief that the world will reject Christ in these End Times before He comes in person to initiate the Millennium over this fallen world. They charge that the pre-mill attitude is ineffective for promoting critical concerns, including creationism.

Pre-mills in turn accuse the post-mills, and other advocates of "Dominion Theology," of embracing New Age occultism and similar humanistic temptations of Satan; of emphasizing worldly success and materialism rather than spiritual values; and of being susceptible to materialistic heresies such as "Prosperity Gospel" and "Christian" psychology. The theological rivalry between these rival camps is often fierce. For example, Constance Cumbey, author of the popular *Hidden Dangers of the Rainbow* (1983), an expose of the New Age movement claiming that it is derived from the same occult sources as Nazism, wrote a sequel called *A Planned Deception: The Staging of a New Age "Messiah"* (1985), in which she accused Pat Robertson of promoting New Age occultism and counterfeit miracles inspired by Satan, and of promoting the heresy of seeking to "usher in Christ's reign right here on earth." Dave Hunt, co-author of the influential book *The Seduction of Christianity* (1985), is likewise engaged in a bitter feud against post-mills. He argues that Dominion Theology, with its stress on gaining worldly

power and wealth, is a Trojan Horse opening the gates to New Age beliefs, occultism and other Satanic counterfeits.

The Reconstructionists are outraged by such accusations (though they admit that some Christians have foolishly adopted unbiblical New Age techniques). They reply that Hunt has mistaken the optimistic post-mill eschatology, and its belief that it will reconquer the world for Christ, for New Age doctrines. (And they strenuously insist that this post-mill optimism has no relation to evolutionism, as the pre-mills charge.) Reconstructionists blame occultism and paranormal phenomena (which they fervently believe in) squarely on humanistic evolution, which, they argue, denies the very basis of law, both scientific and political. Hunt and other pre-mills, they say, are preaching that we must passively await for Armageddon and for Christ to straighten things out for us. Reconstructionist authors DeMar and Leithart have struck back at Hunt with *The Reduction of Christianity: Dave Hunt's Theology of Cultural Surrender* (1987).

While many pre- and post-mills openly denounce each other's eschatologies, many other conservative and evangelical Christians mix these doctrines, or seem to ignore their implications, thus confusing the issue (and illustrating the fundamentalist capacity for tolerating certain inconsistencies and paradoxes). Jerry Falwell asserts that he is a straight pre-tribulationist premillennialist, but tolerates considerable post-mill influence (for instance, he has endorsed Reconstructionist Gary North's *Biblical Blueprint Series*, and the chairman of the government department at his Liberty University is a Reconstructionist sympathizer). Pat Robertson, as Cumbey points out, is strongly influenced by the Reconstructionists also, though he too claims not to have forsaken premillennialism. Reconstructionist leaders Rushdoony and North have been frequent and prominent guests on his *700 Club*. Herb Titus, dean of the Schools of Law and Public Policy at Robertson's CBN University, though he is now a pre-millennialist, has endorsed much of the Reconstructionist program. Joseph Kickasola, a CBN professor of Public Policy, is an avowed Reconstructionist.

Confusing the issue further is the paradoxical status of Pentecostals, who are often accused by strict "Bible only" fundamentalists of succumbing to demonic powers. Jimmy Swaggart strongly endorses dispensationalist premillennialism, and he champions Dave Hunt's (also Dave Wilkerson's) crusade against the post-mills. But many other Pentecostals have become "operationally" post-mill while professing to retain dispensational belief. Many charismatics (Robertson being a good example) support the Reconstructionist agenda.

The significance of this with regard to creationism is that the Reconstructionists accuse pre-mills of being soft and largely ineffective opponents of evolution: a corollary of the general accusation of passivity and fatalism. In *God's Plan for Victory: The Meaning of Post-Millennialism* (1980), Rousas Rushdoony, the leading figure of modern post-millennialism and chief theoretician of the Reconstructionist movement, says that pre-mills tend to succumb to accommodationist views with respect to evolution. Morris, in his view, has been a strong and effective opponent of evolution in spite of his pre-millennialism. Recall that it was Rushdoony who persuaded Craig's Presbyterian and Reformed press to publish Whitcomb and Morris's *Genesis Flood* in 1961, when other fundamentalist publishers considered it too radically uncompromising in its insistence on young-earth creationism and Flood Geology.

Reconstructionists, with their emphasis on total reconstruction of society on a strictly biblical basis, consider creationism of utmost importance. Rushdoony's book *The Mythology of Science* (1967; Craig Press) is mostly concerned with the fallacy of evolution; it contains a chapter titled "The Necessity for Creationism" (reprinted in the *Creation Social Science and Humanities Quarterly* [1980], as a BSA pamphlet, and elsewhere). Citing Van Til, Rushdoony writes:

Men will either presuppose God, or they will presuppose themselves as the basic reality of being. If they assume themselves to be autonomous and independent from God, they will-then wage war against God at every point. There is no such thing as an area of neutrality: men will either affirm God at every point in their lives and thinking, or else they will deny Him at every point. [1967:47]

The basis of evolutionary theories is this anti-God position of apostate and fallen man. The convincing thing about evolution is not that it proves man's origins or even gives anything resembling a possible theory but that it dispenses with God.

Evolution requires chance, whereas science rests on absolutely determined factors and on causality. The doctrine of evolution is thus basically hostile to science.

Again, evolution is a theory which is radically hostile to biblical religion. The Bible clearly asserts that God created heaven and earth, the whole created universe, in six days. If this statement be allegorized or interpreted away, no meaning stands in Scripture. ... Every doctrine of Scripture is undermined when strict creationism is undermined. Wherever strict creationism is set aside, the vital nerve of Christianity is cut, and the Church begins to move in terms of humanistic and political power rather than the power of God. [1967:48-49]

Evolutionists seek "total control over man": it is an "inescapable fact that evolutionary thinking requires totalitarianism. If the education of a people is dedicated to teaching evolution, it will also teach socialism or communism" (1967:52). (Actually, Rushdoony believes that all education, all government, is necessarily indoctrination and necessarily totalitarian; this the theme of Rushdoony's 1963 *The Messianic Character of American Education*. The question is only whether it is to be totalitarian rule according to God's absolute and unchanging law, which is really freedom, or—the only lternative—totalitarianism based on evolutionist indoctrination.)

Evolutionists, says Rushdoony, are "parasites":

They are living off the unearned capital of Christian civilization, on the impetus, law, and order of centuries of Christianity. Like all parasites, they are destroying the host body, Christendom, and its collapse will be their death also. They are denying the eternal decree of God, His sovereign and omnipotent creative counsel and decree, and as a result they are left with a world of chaos which is destructive of science. If they were faithful to their philosophy, these scientists could have no science, because they would have to say that the world is a world of brute factuality, without meaning, purpose, causality, or law. [1967:57]

The only way to prevent this devastating collapse of civilization is to return to biblical Christianity and to strict creationism.

The very first issue (1974) of the *Journal of Christian Reconstruction*, a publication of Rushdoony's Chalcedon Foundation in Vallecito, California, was devoted to defense of a literal recent six-day creation.⁴⁵ The *Journal* is "dedicated to the

⁴⁵ Not all contributors endorse Reconstructionism, however. Steven Austin, writing under the name "Stuart Nevins," later became a geology professor at ICR, which is officially pre-millennialist. Cornelius Van Til himself, though his presuppositional apologetics is a key Reconstructionist doctrine, does not

fulfilment of the cultural mandate of Genesis 1:28 and 9:1—to subdue the earth to the glory of God.” Charles Clough, one contributor, says in his article “Biblical Presuppositions and Historical Geology: A Case Study”:

The issue is this: does Genesis present a view of early history that cannot be reconciled with the view of modern historical science, and, if it does, should Christians loyally remain with Genesis and begin the long arduous task of reconstructing historical science today? [1974:35]

Clough emphatically answers his own rhetorical questions: Genesis interpreted literally does indeed conflict with modern science; attempted harmonizations inevitably compromise this interpretation and must be firmly rejected; the only alternative, therefore, is the complete and deliberate re-interpretation of *all* science and history.

Among organizations most obviously influenced by Reconstructionism is the Coalition on Revival, a Dominion group that promotes fulfillment of the biblical inerrantist view in all aspects of life: the arts, society, political science—everything. Directors of COR include several prominent Reconstructionists (but also many pre-mills). COR has engaged in flamboyant public presentations, at the Capitol in Washington, of its manifestoes demanding acceptance of a Christian worldview. Its “sphere” documents are charters for this total biblical restructuring of society. The Science and Technology “sphere” is chaired by Duane Gish of ICR. COR’s Science and Technology “Sphere Document” (Gish and Cunningham 1986) is of course explicitly biblical and emphatically creationist. Some excerpts:

We affirm that each biological life form was specially created by God as a definite kind, and that all natural variations in life forms have been and are limited to variations within that kind (Genesis 1:11,12,21,24,25; 1 Corinthians 15:38,39).

We deny that life arose from non-life through any evolutionary process, and that the various basic types of plants and animals have arisen from a common ancestor (Psalm 104:30; Acts 17:25)...

We affirm that Adam and Eve were specially created by God and were the first human beings...

We deny that mankind arose from apelike ancestors through any evolutionary process...

We affirm that the Biblical record of history in Genesis 1-11 (including the creation of the universe and its inhabitants in the six days of the Creation Week, the Fall of man, the worldwide flood of Noah’s time, and the origin of languages and the dispersal of mankind from the Tower of Babel) is an accurate and historical account...

We affirm that the Genesis flood was a worldwide aqueous catastrophe that overflowed the entire world... We affirm that the genealogical histories recorded in the Bible, as well as many physical time clocks, indicate that the earth is young. [1986:6-7]

It denies that mankind can be saved through science or any merely human endeavor, and declares that science must be biblically centered. (It also supports military spending, and rejects UCLA historian of science Lynn White’s theory (1967) that the ecological crisis was precipitated by an exploitative attitude fostered by the Genesis Mandate commanding man to “take dominion” over the earth.

Maranatha Campus Ministries, sponsor of the 1988 Creation Conference and of the Society for Creation Science, is another aggressively Dominion-oriented group, and is praised by Reconstructionists. (See, e.g., Broocks’ *Change the Campus, Change the World!* [1985] and his keynote address “The Battle Has Just Begun” to the 1987 National

subscribe to the Reconstructionist agenda. Robbins, incidentally (he is not a contributor to this volume), though a strong presuppositionalist, dissociates himself from the Reconstructionist movement.

Creation Conference.) The Providence Foundation of Virginia, which has close ties with Maranatha, says that “Christianity must permeate every aspect of life in a nation if that nation desires to be free,” and urges that Christianity be brought into public affairs in order to extend the kingdom of God on earth.

Televangelist D. James Kennedy is strongly influenced by Reconstructionism, and has featured Reconstructionists on his TV programs. His Coral Ridge Ministries is listed in Gary DeMar’s *God and Government* (1982) as a “Christian reconstruction” organization dedicated to advancing the kingdom of Christ. Francis Schaeffer has also been strongly influenced by Reconstructionism; his *A Christian Manifesto* (1981) is largely based on Reconstructionist ideas.

Other Reconstructionist organizations (all of them strongly creationist) are Gary North’s Institute for Christian Economics in Texas, Gary DeMar’s American Vision, the Plymouth Rock Foundation of New Hampshire, Pat Robertson’s Freedom Council, John Whitehead’s Rutherford Institute, and several others.

Gary North, editor of the premiere *J. Christian Reconstruction* which was devoted to creationism, is Rushdoony’s son-in-law (though they have had a rift over doctrinal matters). North insists, in *Unholy Spirits: Occultism and New Age Humanism* (1986), that humanism, which includes evolution, is based on irrationalism as much as on rationalism, and is fundamentally the same as occultism and Satanism. “Thus, as the West has become increasingly atheistic and Darwinian, it has become vulnerable to anti-rational social philosophies and practices.” Not that North disputes the reality of the occult: on the contrary, he presents massively documented chapters asserting the reality of the paranormal and the occult, including the most sensational reports, but he attributes them to the powers of Satan and his demons.

In *Is the World Running Down?* (1988), North vigorously promotes biblical creationism. Scientific creationists are wrong, he says, in appealing to the entropy argument. Appealing himself to post-millennialist eschatology and biblical presuppositionalism, he declares that the world is *not* running down. He accuses the “scientific creationists” of paying too much attention to the Fall (entropy), and not enough to the Resurrection, and of relying on evidentialist apologetics. “What I present in this book is a Bible-based case against the prevailing apologetic approach of most scientifically trained six-day creationists” (1988:x). North praises creation-scientists for attacking evolution, but says they have not gone far enough.

What I want to do in this book is strengthen the case for six-day creationism. I have become convinced that the Scientific Creationists have been much too soft and academically gracious in their dealings with God-hating Darwinian scientists. These defenders of the faith have not “gone for the jugular” of their opponents, for they have accepted too many of their opponents’ illegitimate ground rules in the debate.

This insight regarding the proper starting point in all debate has been forcefully argued by Cornelius Van and the unwillingness of the Creation Science movement to understand his point and adopt his apologetic method has crippled their own efforts as surely as their debate points have crippled their Darwinist opponents. [1988:xii]

North accuses Scientific Creationists of supposing, like evolutionists, that man’s autonomous mind can judge God’s Truth, instead of realizing they must “go to the Bible for their source of scientific knowledge.”

Half a dozen of the most forensically skilled of the Scientific Creationists have been tactically successful in many brief public debates with Darwinists, but only because of the weak scientific case for Darwinism and

the weak debaters who foolishly agreed to show up. [N]evertheless, Scientific Creationists have not yet begun to offer a systematic, comprehensive alternative worldview to the dominant Darwinian paradigm. They have failed to recognize clearly that the heart of Darwinism's hold on the thinking of the modern world is not the evolutionists' scientific case, which has been remarkably weak from the beginning, but rather the very worldview of Darwinism, for it conforms to the primary long-term goal of autonomous man: to escape from God's judgements, historical and final.

By narrowing the focus of their chosen intellectual battleground, Scientific Creationists have not yet successfully attacked the soft underbelly of Darwinism: historical despair. Scientific Creationists, by proclaiming the sovereignty of the entropy process, have also immersed their own worldview in historical despair. They can offer Darwinists and their followers only an escape from history: Jesus' second coming. Historical escape is exactly what New Age mystics offer them, but without asking them to give up the fundamental principle of their Darwinian religion: an escape from God's judgments. Which, if either, of these escapist religious appeals should we expect to win the hearts of Darwinian humanists, New Age mysticism or Scientific Creationism? The answer is obvious. The New Age mystics allow secular humanists to retain the heart of their Darwinian religion: human autonomy.

Christians need a better alternative than historical despair, both for themselves and for their presentation of Christ's gospel of redemption. We are at war with post-Darwinian evolutionism, and this war encompasses every area of life. Very few Christians recognize the comprehensive, literally life-and-death nature of this war, including members of the Scientific Creation movement...

This indicates that the vast majority of Christians still do not believe that the doctrine of the six-day creation is relevant for Christian spiritual life. There is a reason for this: Scientific Creationists have written virtually nothing on how and why the doctrine of the six-day creation must reshape all of modern Christian theology and the entire Christian way of life. Christians have not been shown clearly and decisively that Darwinism is a total worldview, and that by accepting any aspect of this worldview, Christians compromise and weaken the presentation of the Christian worldview, as well as risk disobeying God. They have not been shown how evolutionism spreads like cancer from the geology or history textbook to every area of personal ethics and public policy. Worse, they have not been shown why and how six-day creationism leads to a fundamentally unique worldview that encompasses things other than academic topics like historical geology and biology. To win the battle with Darwinism, which is above all a comprehensive worldview justifying comprehensive power, six-day creationists must believe that the stakes are far larger than mere laboratory experiments or one-evening debates. Creation scientists must demonstrate that six-day creationism really makes a difference in every area of life...

The only people who seem to understand how much of a threat the six-day creation doctrine is to all of modern secular humanism are the best-informed secular humanists on one side and the Christian Reconstructionists on the other. The secular humanists reject the conclusions of the Scientific Creationists, and argue that the creationists' official methodology (the appeal to scientific neutrality) is a charade, while the Christian Reconstructionists accept the creationists' conclusions but reject their methodology as self-deception rather than a charade. [1988:xiii-xv]

Gary DeMar's American Vision publishes *The Biblical Worldview*. A recent article, explaining how the Bible was to be applied to education, criticized the ICR-style "twomodel" approach:

We must not encourage [students] to doubt God or to question Him. Neither should we encourage the students to set themselves up as judges over the Word of God. Unfortunately, the current "creation-science" movement falls into this error (among others). According to this view, the students are to be presented with the evolutionary view of origins and the creationist view (which is totally divorced from God and His Word), and allowed to make up their own minds as to which is true and which is false. In effect, students are being told, "Here are two guesses about origins: one is prevalent among modern scientists, and the other comes from the Bible (although we won't tell you that). You decide if God is right or if He is wrong." We must soundly reject such an approach. God does not call upon us to judge His Word; His Word judges us, and determines whether or not we are faithful to Him. We must reject the "creation-science" approach to science. (Let me add that much of the work of creation scientists is very helpful; I am merely speaking here of the recommended methodology of teaching creationism in the schools.) [R. Kirby 1989:6]

We should declare, says the author, that the reason we do not believe in evolution is because the Bible teaches creationism, not because evolution is unscientific (though that is true too).

The Plymouth Rock Foundation has organized “Committees of Correspondence” (named after Revolutionary War-era patriot groups) nationwide to reclaim America for Christ. (Curiously, the organized anti-creationist information network, which pre-dates the Plymouth Rock groups, also calls their local groups “Committees of Correspondence”). Rus Walton, leader of Plymouth Rock, includes a chapter “Evolution vs. Creation” in his book *Biblical Principles Concerning Issues of Importance to Godly Christians* (1984). Teaching only the evolution view, says Walton, violates the religious rights of Christian students, though he also endorses all the standard creation-science arguments.

Reconstructionism explicitly demands a return to Old Testament law, which it claims still applies exhaustively and in minutest detail. Rushdoony has explained this in his massive *Institutes of Biblical Law* (1973), which is modeled on Calvin’s *Institutes of the Christian Religion*. This is in sharp contrast to the dispensationalist view, which sees clear distinctions between the different ages,⁴⁶ and harks back to the pre-Civil War view which conceived of America in Old Testament terms (though not so literally). Rushdoony and his followers are openly contemptuous of democracy, which presupposes man’s autonomy rather than God’s eternal and absolute law. “Humanistic law,” he says, “is inescapably totalitarian law.” Totalitarian rule according to God’s law is really freedom; the only alternative is totalitarianism based on evolutionism and humanism. Either God is acknowledged as Absolute, or the State becomes absolute.

The Reconstructionists seek a return to a feudal system, and assert that the American Revolution was actually a conservative counter-revolution—a “Protestant feudal restoration” (Rushdoony 1978). Reconstructionist James Jordan explains that “the notion of human rights was introduced by Satan in the Garden of Eden, and the notion that men have inherent rights is simply a way of affirming original sin” (quoted in Edwards and McCabe 1987:9). The Reconstructionists are dead serious in their intention to abolish democracy and transform America into a strict theocracy. *Christianity Today*, the conservative evangelical magazine, titled a recent critical article about the movement “Democracy as Heresy” (Clapp 1987), pointing out, with evident alarm, that the Reconstructionists call for (among other things) the reinstatement of slavery (biblical slavery, similar to indentured servitude), and the death penalty for a variety of moral sins.

North, agreeing with Rushdoony that education is inevitably religious and necessarily indoctrination, and on the “myth” of neutrality, concludes from this that:

⁴⁶ Marsden (1980:65-66) has noted the similarity between dispensationalist pre-millennialism, Marxism, and geological catastrophism. All suppose a succession of distinct ages, each ending suddenly, usually violently, followed by radically new forms (organisms, covenantal relationships with God, types of society) in the next age. All three are products of the nineteenth century, though geological catastrophism originated earlier (and was eclipsed by Lyell’s uniformitarianism in mid-century), and dispensationalism dominated fundamentalism chiefly in the twentieth century. Rushdoony himself explicitly emphasizes the millenarian appeal of Marxism, which he sees as a direct rival to his post-mill eschatology, but declares that “it is the kingdom of God, not Marx’s ‘kingdom of freedom,’ which shall reign triumphant” (inside front cover of the *Journal of Christian Reconstruction*). And Reconstructionist Gary North emphasizes the analogous appeal of New Age humanism with its rival vision of a coming earthly utopia.

As a tactic for a short-run defense of the independent Christian school movement, the appeal to religious liberty is legitimate. Everyone who is attempting to impose a world-and-life view on a majority (or on a ruling minority) always uses some version of the liberty doctrine to buy himself and his movement some time, some organizational freedom, and some power...So let us be blunt about it: we must use the doctrine of religious liberty to gain independence for Christian schools until we train up a generation of people who know that there is no religious neutrality, and no neutral civil government. Then they will get busy in constructing a Bible-based social, political, and religious order which finally denies the religious liberty of the enemies of God. [Quoted in Edwards and McCabe 1987:9]

John Whitehead co-authored with former Congressman John Conlan the seminal 1978 law review article, “The Establishment of Secular Humanism and Its First Amendment Implications,” that defined secular humanism as the cause of society’s evils. Whitehead is founder and president of the Rutherford Institute, which is active in many important religious rights cases, including creationism cases. The Institute is named after Samuel Rutherford (eulogized by D.James Kennedy) who, in his 1644 *Lex Rex*, argued against the “divine right” of kings, declaring that the law—God’s sovereign Law—was king, and not vice-versa (not ‘Rex Lex’). Rushdoony’s Chalcedon Foundation was “instrumental in establishing the Rutherford Institute,” according to Rutherford promotional literature. In a 1977 book, *The Separation Illusion*, heavily influenced by Rushdoony (who wrote the Foreword), Whitehead dismissed democracy as mob rule, and explained that religion was never intended to be separated from government. Whitehead, as already noted, defended the Calvinist South against the Northern Unitarian-Statist aggressors in the Civil War.

David Hoggan, who has a Harvard history Ph.D., was another follower of Rushdoony’s. He wrote sections of Rushdoony’s books (e.g. Rushdoony 1963), and dedicated his own book *The Myth of the ‘New History’* to Rushdoony, who he cites frequently. In that book, which justifies Germany’s role in the World Wars, Hoggan argued that evolutionist, anti-biblical propagandists have rewritten history (the “New History”) to serve their ideological purposes, a distortion he and other “revisionist” historians seek to correct. He advocates Christian values, and also argues that since blacks were not worse off under slavery, the Civil War was a needless conflict. His book, originally published by Craig Press, was reprinted by the Institute for Historical Review of Torrance (now Costa Mesa), California, the group that denies that the Nazis systematically killed Jews.⁴⁷ The last IHR conference was dedicated to Hoggan, and IHR has just published Hoggan’s major work, *The Forced War* (1989), an apologetic for Germany’s role in WWII, originally published in 1961 in German.

The best-known creation-science leaders are not racist (at last not in the most direct sense).⁴⁸ But the views of the creationist Reconstructionists are easily adopted by

⁴⁷ The dedication to Rushdoony is omitted in the IHR edition, though many revisionist supporters are also fundamentalist creationists—notably Herman Otten, who was a featured speaker at the last IHR conference. In response to an inquiry of mine about Hoggan, Rushdoony denied that Hoggan was a Reconstructionist, and said that he and Hoggan hadn’t had any contact since working together in the sixties at an unnamed conservative foundation. Rushdoony also claimed to know nothing about Hoggan’s IHR ties.

⁴⁸ Creationists such as Morris and Custance maintain that human races—descendants of Noah’s three sons—have different and distinctive capacities and talents: Shemites (Semites) as spiritual leaders, Japhethites (whites) as intellectual and political leaders, and Hamites (blacks, Mongoloids) as concentrating on material and physical aspects of life. Morris condemns all extra-biblical genocide, but condones

racists. All men are not equal. Christian is “radically anti-democratic”; democracy is a great heresy; there is a “spiritual aristocracy.” North, in an article on the “Basic Implications of the Six-Day Creation” in the debut *J. of Christian Reconstruction* issue (North 1974:24), writes that:

There are therefore two distinct brotherhoods, for there are two fatherhoods: God the Father-Creator of all men and God the Father-Redeemer of some men...Not all men are brothers ethically; the brotherhood of the promise of grace is limited to God’s predestined elect.

Charles Magne cites Rushdoony approvingly in *The Negro and the World Crisis* (undated), in which he demonstrates that the Bible teaches that blacks were created separately, as animals (servants and beasts of burden for the Adamic white race), and have no souls. (Rushdoony, on the other hand, accuses evolutionists of claiming separate origins for the races, and insists that the Bible teaches the unity of all mankind.) Magne’s argument, expounded in many similar books and pamphlets, is a central doctrine of the “Christian Identity” movement, which is espoused by many neo-Nazi groups. In “Christian Identity” belief, blacks are a pre-Adamic creation, literally the “beasts” of Genesis (there being both four- and two-footed kinds). Eve was impregnated both by Adam, whose descendants are the white race, and by Satan the Serpent, from whose line Jews descend. “Christian Identity” doctrine is endorsed by many neo-Nazi groups.

THE COSMONOMIC MOVEMENT

Christian Reconstructionism has interesting ties with the Cosmonomic movement, which began in Holland around the turn of the century. Abraham Kuyper, the Dutch Prime Minister (1901-1905), was a conservative Calvinist theologian who campaigned against liberalism. Rushdoony attributes to Kuyper the development of the concept of “sphere laws.” It was Kuyper who first advanced the notion that all thought must proceed on presuppositional faith (the presuppositional apologetics developed later in this country by Van Til), recognizing God’s sovereignty in each “sphere,” rather than relying on reasoning solely from evidence.

Herman Dooyeweerd, a Calvinist philosopher and law professor at the Free University of Amsterdam (founded by Kuyper in 1880 as a bastion against liberalism), expanded on the concept of “sphere law” and presuppositional apologetics in his massive three-volume treatise *A New Critique of Theoretical Thought* (1953-1957; originally published in 1935-1936 in Dutch; published in this country by Presbyterian and Reformed).

The great turning point in my thought was marked by the discovery of the religious root of thought itself, whereby a new light was shed on the failure of all attempts, including my own, to bring about an inner synthesis between the Christian faith and a philosophy which is rooted in faith in the self-sufficiency of human reason.

I came to understand the central significance of the “heart,” repeatedly proclaimed by Holy Scripture to be the religious root of human existence. On the basis of this central Christian point of view I saw the need of a revolution in philosophical thought of a very radical character. Confronted with the religious root of

genocidal acts described in the Old Testament, which of course he interprets literally. Many other creationists have been flagrantly racist (e.g. Hasskarl 1898, Carroll 1900), and some still are today. See entries listed under “racism” in subject index of McIver 1988a.

the creation, nothing less is in question than a relating of the whole temporal cosmos, in both its so-called “natural” and “spiritual” aspects, to this point of reference. In contrast to this basic Biblical conception, of what significance is a so-called ‘Copernican’ revolution which merely makes the ‘natural-aspects’ of temporal reality relative to a theoretical abstraction such as Kant’s ‘transcendental subject’?

From a Christian point of view, the whole attitude of philosophical thought which proclaims the self-sufficiency of the latter, turns out to be unacceptable, because it withdraws human thought from the divine revelation in Christ Jesus.

If temporal reality itself cannot be neutral with respect to its religious root, if in other words the whole notion of a static temporal cosmos ‘an sich,’ independent of the religious root of mankind, rests on a fundamental misconception, how can one any longer seriously believe in the religious neutrality of theoretical thought?

One of the fundamental principles of this new philosophy is the cosmological basic principle of sphere sovereignty. Its development was suggested by (the famous Dutch thinker and statesman) Abraham Kuyper, but depends on the introduction of a religious Christian foundation into philosophy. On this principle rest the general theory of the modal law-spheres... [1953:v-vi]

Dooyeweerd called for a total reformulation of philosophy and science, and a rejection of the non-Christian assumption of the autonomy of man’s thought and recognition of man’s complete submission to God’s will. Dooyeweerd’s “Cosmonomic” philosophy declares that the entire cosmos is governed by God’s law, and that this cosmos is arranged in a hierarchy of increasing complexity. God has created a different set of laws for each level, or “sphere,” in the hierarchy: time, space, motion and energy, the biotic realm, the human sensorium, logic, the Genesis cultural mandate and the will (psychology), semantics, social intercourse, economics, esthetics, and law (jurisprudence). True freedom comes from recognition and acceptance of the limits set by God with these laws. Similarly, each species (kind) of biological organism is governed by a different set of laws. (One corollary is that we can’t understand man by studying animals.) Dooyeweerd claims that the mechanist-vitalist debate can be resolved by recognition of this hierarchy of God-given natural laws. Scientific facts can be interpreted either from the evolutionary naturalistic frame of reference or from the biblical creationist perspective. Science is thus a religious activity, since Christians must accept the truth of the Bible (upon which their science is dependent) on faith, and reductionist evolutionism is really animistic and dependent on miracles. Dooyeweerd emphatically rejected evolution as unscientific as well as opposed to Christian presuppositions, and apparently believed that the fossil record was best explained by the Flood.

Dooyeweerd’s disciple J.J. Duyvene De Wit, a South African zoology professor (formerly at the Free University of Amsterdam), was also staunchly creationist. De Wit urged a reformation of biology and other sciences by examination of its philosophical and theoretical basis, and reconstructed biology according to Christian presuppositions, arguing, following Dooyeweerd, that the cytoplasm contained a higher level of information than the DNA. He asserted that evolution was hopelessly unscientific. “No fossil documentation whatsoever with respect to the assumed animal ancestors of man has been found,” he said in a 1963 address to the Scientific Society of the University of Orange Free State. Like Dooyeweerd, he considered evolutionist belief pure animism, and maintained that God created different laws for each species. He also followed Dooyeweerd in arguing against the primacy of DNA: his research showed that DNA was responsible for intra-species variations only, and that the cytoplasm (outer cell layer) accounted for differences between species.

De Wit hoped that American creationists would take notice of Dooyeweerd's "Cosmonomic" anti-evolutionist biology, though mainstream fundamentalist creationists in the "evidentialist" apologetic tradition have considered Dooyeweerd's radical theoretical reconstruction of science rather alien. Magnus Verbrugge wrote a three-part article in the *Creation Research Society Quarterly*, "The Legacy of Duyvene De Wit for Creationist Biology," similarly urging a merging of these two anti-evolutionist schools. Verbrugge, a surgeon, is Dooyeweerd's son-in-law, and lists his address as the Dooyeweerd Foundation in La Jolla, California. He also wrote an article for ICR's "Impact" series ("Materialism, Animism, and Evolution"), in which he asserted that materialism and denial of God as Creator results in animistic belief. Modern evolutionists deny belief in vitalism, but attribute animistic powers to other forces.

Materialists have been repeating over and over that Christians want to introduce supernatural forces into science. But it is really the materialists who want to introduce spirits and animism into science under the guise of creative forces hiding in dead molecules. [1981:iv]

Verbrugge expanded on this theme that materialistic evolution requires animistic belief in *Alive: An Enquiry into the Origin and Meaning of Life* (1984), which was published by a press affiliated with Rushdoony's Chalcedon Foundation, and has a Foreword by Rushdoony. Those who reject God always substitute other gods, Verbrugge says. Since the humanist Renaissance, scientists have continued to invent animistic spirits, reverting to the pagan animism of the ancient Greeks, who invented various spirit forces to explain life. Verbrugge argues that Christians must adhere to Dooyeweerd's "cosmonomic" view of creation, and stresses Dooyeweerd's distinction between 'function' and 'functor.' Those who reject the Creator constantly confuse these, and endow mere capacities with animistic powers. God-rejecting science, concludes Verbrugge, is a mass of circular reasoning and contradictions.

Hebden Taylor, a pastor and author of books on Christian law and politics who later taught at Dordt College, presented "A Study of the Biological Thought" of Dooyeweerd and De Wit in his book *Evolution and the Reformation of Biology* (1967), published by Craig Press. Taylor urges biblical creationism rather than the "apostate humanist theory" of origins by chance, and praises Dooyeweerd's Cosmonomic approach. "Only by accepting God's Word as the ordering principle in scientific study can we make sense of the data of science."

The Reformed scientific approach to modern biology is the only one which can effectively answer the modern apostate evolution. The facts of science can be interpreted in either of two frames of reference: (1) evolutionary naturalism, or (2) the Biblical account of creation. As a result the Christian believes that the universe derives its existence from Almighty God who created it for His own glory out of nothing. It follows that scientific thought and research are fundamentally a religious activity.

Taylor advocates Flood Geology: "the Great Deluge alone offers a plausible solution to the enigma of the fossil record," and argues that genetics and mutations do not allow for the continuous progressive variation required by evolution. He also, revealingly, disagrees with Ernst Mayr's rejection of typological thinking in biology (1967:55ff). (Mayr emphasized this Popperian theme recently in his 1982 *Growth of Biological Thought*.)

Samuel Wolfe presented Dooyeweerd's Cosmonomic philosophy in *A Key to Dooyeweerd* (1978), a book published by Presbyterian and Reformed. Discussing each of Dooyeweerd's "spheres" of law, Wolfe points out that Dooyeweerd did not deal with 'faith' as a sphere—a shortcoming which Wolfe tries to rectify, adding it as a final sphere. Wolfe says that Dordt College in Iowa, a Calvinist institution, has been the center of the Cosmonomic Movement in this country, and that *Vanguard* magazine is a leading promoter of it in Toronto. (See Maatman 1970, 1978; Maatman is a Dordt College science professor.) Wolfe also urges that the Cosmonomic and creation-science movements join forces against evolution. He discusses attempts by himself and by George Howe, science professor at Los Angeles Baptist College and Board member of the Creation Research Society, to arouse interest in Dooyeweerd and the Cosmonomic movement in this country. Howe, he says (1978:27), corresponded with De Wit on the subject of establishing closer ties between the Cosmonomic and Creationist movements, but Wolfe notes that they were able to elicit little interest in the Cosmonomic movement in this country. Wolfe praises Rushdoony for successfully combining them. Ouweneel's philosophical anthropology also owes much to Dooyeweerd's attempts to found a "Christian anthropology."

CONCLUSIONS

Because the main assumption underlying creationism—that of biblical inerrancy—is absolute and not subject to skepticism or revision, as is also the core concept of creationism itself—supernatural creation as opposed to natural descent from common ancestral forms—it is easy to suppose that creationism is an immutable idea, a single doctrine. It isn't. Many different types of creationism have been proposed, promoted and argued.

The most obvious division is between the young-earth creationists and the old-earthers. Prior to the rise of modern geology in the eighteenth and nineteenth centuries, it had been easy for Christian believers to suppose that the earth was as young as implied by a plain, straightforward reading of Genesis—that it did not significantly predate the creation of man, which the Bible indicated was mere thousands of years ago. The science of geology made this view increasingly difficult to hold. Some opted for condemnations of this new science as anti-biblical, but most others attempted to reinterpret Genesis so as to accommodate these new scientific conclusions regarding the age of the earth (and later, of mankind).

Thus, various forms of old-earth creationism were formulated. The Gap Theory, which quickly became the favored old-earth theory in Britain, permitted retention of a literal six-day creation by recasting this creation as a “re-creation” following long pre-Adamic ages. The Day-Age theory, which had antecedents in liberal and symbolic (less literal) religious interpretations of Genesis, was meanwhile favored in Continental Europe, and eventually attained popularity in Britain and America also. Originally (before the acceptance of evolution by science), both of these theories were liberal approaches reconciling the conclusions of science with Genesis, but, after Darwin, these old-earth creationist views have generally become only somewhat less conservative (if at all) than young-earth creationism, due to their continuing denial of evolution.

Day-Age and Gap Theory creationism both remain very popular, and have spawned many variants and hybrids. Day-Age creationism is the more concordist or harmonizing approach as it attempts to show that science and Genesis really say the same thing, while the Gap Theory, which tends to be favored by the more conservative and literally-minded of the old-earthers, employs a purely ad hoc exegetical hypothesis to assert that the Bible is silent regarding these ages, all of which exist between the very first two verses of the Bible. Gappers criticize Day-Agers for abandoning the literal days of Genesis and for claiming much more of a correspondence than actually exists (there are obvious and serious discrepancies) between the chronology shown by geology and paleontology and that described in the six day/ages of Genesis. Day-Agers, for their part, criticize Gappers for positing a whopping extra-biblical assumption: i.e., the gap between Genesis 1:1 and 1:2 itself—a gap which would never otherwise be posited were it not felt to be required by the long ages demonstrated by geology.

Day-Agers have hypothesized many different and ingenious harmonization schemes between the Six Days and modern scientific cosmology, earth science and paleontology. More recent variants have equated the initial creation with Big Bang cosmology, and many have proposed that events such as the separation of light from darkness, of land from sea, and of the “waters above” from the “waters below,” refer to processes of galactic and stellar evolution—e.g., condensation of cosmic material into

stars and planets. Creation of “grasses” and “herbs” are often held to refer to marine organisms and primitive bacteria; similarly, the creatures created on the fifth day, birds and animals “brought forth” from the waters, are interpreted to include dinosaurs, since dinosaurs lived either in the sea or in swampy areas, and there were closely-related flying reptiles during this era.

Gappers have come up with a number of biblical passages which they claim corroborates their Gap hypothesis, which is otherwise unhinted at in Genesis. They have used these passages to construct an elaborate scenario of a long pre-Adamic reign of Satan on earth after his rebellion against God, and argue that these passages thus verify their Gap Theory interpretation.

Gap Theory and Day-Age creationism have both remained popular through the heyday of fundamentalist activity in the 1920s to the present time. Young-earth creationism has enjoyed a renaissance following its re-discovery by George McCready Price around the turn of this century, and even more so with its recent popularization following the publication of *The Genesis Flood* in 1961 and the formation of strict young-earth organizations such as CRS, ICR, and BSA and the resurgence of fundamentalism generally.

This “new” young-earth creationism is based on Flood Geology: the interpretation of all or most of the earth’s geophysical features as due to the action of the Genesis flood survived by Noah. Price set forth the doctrines of modern Flood Geology, which Henry Morris of ICR has developed and popularized to a wide audience. But much of their explanation echoes the “classical” Flood geologists: those scientists and theoreticians, who, prior to the development of modern geological science, and lacking other, plausible naturalistic causes, attempted to account for earth’s geophysical features by reference to the flood described in Genesis. The more scientific of these classical Flood theorists attempted to rely as little as possible on sheer miracle, positing natural causes as much as possible for earth history. This eventually led to abandonment of the Flood as explanation for all of earth history; instead, a whole series of similar catastrophes was hypothesized, of which the Flood was but the latest. Other variants included assumption of a regional rather than a worldwide Flood, typically by arguing that it was only that portion of the planet occupied and known to man which God needed to destroy to punish fallen humanity.

The re-emergence of young-earth Flood Geology creationism is linked to the growth of militant fundamentalism in the beginning of the century and to its revived popularity in recent decades. Protestant “fundamentalism” is a movement built upon various beliefs and doctrinal ingredients. Absolute biblical inerrancy, the foremost principle, came to be insisted upon in conjunction with (and as a consequence of) other beliefs and traditions. These include the philosophical tradition of Common Sense realism, belief in the perspicuity of nature and the Bible and in the propositional nature of the Bible, and prophetic and millennialist traditions based on interpretations and calculations derived from the Bible. Together, these beliefs led to an attitude of hyper-facticity regarding the Bible as well as nature, and a highly literalist approach to the Bible. In turn, this fostered the Bible-science approach, which assumed that any and all biblical statements referring to the physical world must be scientifically true, and that the Bible contains and anticipates truths that modern science has only recently, and less conclusively, discovered.

Historical and cultural conditions led to a greatly increased popularity of fundamentalism in the first decades of this century, especially with the loss of faith in progress and in secular science following World War One, which was attributed by fundamentalists to abandonment of traditional Christian morality (especially by Germany) as a result of wholesale acceptance of Darwinism. The concern over moral conditions and the moral basis of society has always been, and still is, of paramount concern for fundamentalists. Especially following the Great War, evolution became the focus of fundamentalist concern, as it was perceived as denying the very basis of Christian and biblical authority, and thus of morality.

Fundamentalism is characterized by an abhorrence of compromise and a sharply dichotomizing outlook, resulting in rejection of all compromising theories, and insistence on more narrowly literalist interpretations. Strict fundamentalists generally condemn Day-Age creationism and other harmonizing schemes as dangerous compromises which lead inevitably to further apostasy. Many continue to endorse the Gap Theory, but the strictist fundamentalists now tend to insist upon young-earth creationism as the only biblical interpretation. A notable example of the evolution and dialectic of creationist theory is the position of George Frederick Wright, who (depending on one's interpretation) either remained stationary while fundamentalism changed around him or himself evolved in a fundamentalist direction in response to these conditions. Considered an influential Christian Darwinist at first, he became known as a fundamentalist anti-evolutionist, contributing to *The Fundamentals* and cited as such by Bryan during the Scopes Trial.

Since the high point of fundamentalist political influence and activity in the 1920s, there has been a changing strategy of fundamentalist lobbying and political efforts against evolution. The initial strategy was simply to enforce an outright ban on the teaching of evolution as anti-biblical and directly and irredeemably opposed to Christian belief and morality. When this strategy did not prevail, the next stage was an attempt to enforce the granting of equal time to the biblical account of creation alongside evolution. When this too was declared unconstitutional, the strategy shifted to attempts to enforce equal time for "creation-science"—supposedly a scientific, non-religious theory endorsed as a valid alternative to the evolutionist theory of origins. This approach too has met with continued legal setbacks, though there has been a renewal of creationist activity aimed at local teachers, parents, students and school boards, aimed not at enforcing creationism from above, but in educating and influencing people to demand it and teach it at the local level.

But in addition to this evolution of strategy, there have been further schisms within creationism regarding these approaches. Some fundamentalist creationists reject the appeal for teaching of "creation-science" as itself surrender to anti-Christian and evolutionist secularism. These fundamentalist opponents of creation-science insist on openly proclaiming the essential biblical basis of creationism. Americans, as citizens of a Christian nation with constitutional protection of religious beliefs, should not feel compelled to pretend to deny the undeniable biblical and religious basis of creationism, and should not be subjected to exclusive teaching of evolution, which itself denies the very basis of true Christianity. Christian students should be offered biblical creationism as a balance to Bible-denying evolution. The Christian Reconstructionists go even further. Their avowed aim, which reflects the influence of their post-millennialist

eschatological beliefs, is the reconstruction of America according to biblical principles, including education, government, and science. Reconstructionists view evolution as the vain delusion of God-denying humanists, and under their proposed Reconstructionist theocracy, only God-honoring biblical creationism would be allowed.

Of the most influential contemporary creationist organizations, the Institute for Creation Research urges acceptance of creation-science in schools as a non-religious alternative to evolution, while the Creation-Science Research Center, from which it split, argues for the presentation of creationism as a constitutionally protected religious right of Bible-believing Christians. ICR seeks to promote creationism by its own educational efforts, producing creation-science books, training teachers, and converting students, other teachers and the general public to accept creation-science as a superior explanation than evolution. CSRC seeks to impose creationism more directly from above, by legislation and lawsuits. The Creation Research Society produces textbooks and especially its *CRS Quarterly*, with the aim of validating the scientific basis of creationism. The Bible-Science Association, currently shifting course, has in the past propagandized widely for biblical creationism and against evolutionism to lay public and religious audiences. The Reconstructionists and their allies seek a theocracy in which evolution would be forever banished as anti-Christian and opposed to biblical truth.

In addition to strict young-earth creationism and the two major old-earth types of creationism (Gap and Day-Age creationism, there are several other theories. The Revelatory theory interprets the six days of creation as a series of visions, or written accounts. According to the Framework or Literary theory, the Genesis account employs poetic or literary devices; the events and processes of the six days are not necessarily chronological, and may overlap. In Progressive creationism, God intervenes directly at various times over the ages, creating new species or modifying old ones. In the Intermittent Day theory, the six days of creation were separated by long ages. In the Days of Divine Fiat theory, creation was declared in six days, but the processes so initiated unfolded over long periods. Some of these theories can be combined, and there are many variants and hybrid forms.

Within each type of creationism, there are very many subsidiary hypotheses, each subject to revision, variation, and evolution. These subsidiary hypotheses illustrate the surprising fertility and cleverness of creationist imagination in devising hypotheses which seek to preserve biblical inerrancy and the core concept of supernatural creation while responding to various disconfirming facts and evidence.

All too often an anti-creationist not familiar with modern creation-science arguments will suppose that obvious or classical objections to creationism will suffice to stump their creationist opponents—that these are objections that the creationist cannot answer (except perhaps by simple appeal to miracle). Such is far from being the case. These anti-creationists suppose that they have an unanswerable scientific and logical refutation of “the creationist argument” (singular). Creationist theoreticians, however, have rationalized responses and counter-arguments to these objections almost as soon as they have been voiced. Lay creationists may be stumped by old and obvious objections, but the theoreticians can and do provide an answer for everything.

Many of the most obvious of these anti-creationist arguments concern the Flood. E.g., how did all the species fit on board Noah’s Ark? What about provision of food and accumulation or disposal of waste? What about bacteria and parasites? Others concern

the standard proofs of evolution. E.g., what about the existence of vestigial organs? Stages of embryological development? Fossils of primitive and transitional forms? Evidence of pre-human hominids? Such arguments trouble the prepared and trained creationist not a whit; he can answer all of them and more with contemptuous ease, leaving all but his most seasoned opponents fumbling for evolutionist explanations as satisfyingly simple and easy to understand as his creationist answers.

For starters, none of the more sophisticated scientific creationists argue anymore for fixity of species since creation. All allow for considerable “micro-evolution” (or “variation,” as they usually prefer to call it) between the major, created types, or “kinds.” “Species” can evolve, but these created “kinds” cannot change into other types. Thus, members of each “kind” only were taken aboard the Ark, but not representatives of all species. Bacteria, parasites, and other evil forms of life are usually described as the result of degeneration (variation) from the created kinds (all of which were “good” when initially created by God) after the Fall, when sin entered the world. The animals may have undergone a sort of hibernation or sleep while aboard the Ark, thus largely obviating the need for food. “Vestigial” organs are simply not accepted as such by creationists; they maintain that all such cases have some function, even if as yet undiscovered. Similarity between “kinds” in early embryological stages is dismissed as merely superficial, since the similar embryological features go on to develop into different structures with different functions. And creationists of course admit to no transitional forms in the fossil record. Aided by their already strong tendency to dichotomize, they simply classify all proposed transitions as belonging to one or another “kind.” Or, they accept the transitional form as a new, extinct, kind—thus creating the obligation for evolutionists to discover *two* transitional forms now. Pre-human hominids are classified as either fully apes, fully humans (possible degenerate variations), or hoaxes. Creationists disagree about some transitions: *Homo erectus*, for instance, with a cranial capacity midway between apes and humans, is classified as “true man” by Morris and ICR in *Scientific Creationism* (1974:174), but elsewhere Gish and other creationists declare it is merely an ape.

A spectacular example of elaboration of creationist theory is the development, modification and variation of the Water Canopy theory. The origin of the modern water canopy theory was Isaac Newton Vail’s “Annular Theory,” first proposed in 1874. Vail tried to reconcile the literal biblical description of the pre-Flood earth with modern science by hypothesizing that prior to the Flood the earth was covered by an enormous cloud-canopy which accounted for the vastly different climatic and ecological conditions of the pre-Flood earth, including the biblical description of Eden. But Vail described his Annular Theory as “evolutionist,” since he envisioned the pre-Flood water canopy as the final stage of a whole series of planet-encircling systems. Each planet, including earth, said Vail, undergoes a similar evolution, beginning in a molten state. Water and much other heavier material was vaporized and lofted far above the surface, where it remained suspended in a series of gigantic rings around the rapidly rotating early planet, similar to the rings of Saturn. Eventually, each ring settled closer to the surface, spreading out to form a globe-encircling canopy, and finally collapsed, precipitating its contents onto the polar regions. The lowest rings contained the heaviest substances, and account for the earth’s geological strata. Earth’s uppermost ring was composed of immense quantities of water vapor; its collapse caused the Genesis Flood.

Vail's Canopy Theory was soon adopted by the Jehovah's Witnesses and other creationists. Modern strict creationists have made the canopy theory a central feature of their creation-science, though they have completely jettisoned all the developmental, "evolutionist" aspects of Vail's original conception. They hold that the Canopy was created directly by God. Following Vail, they use it to explain all the unusual features of the pre-Flood earth: the fabulous longevity of the patriarchs (largely due to increased oxygen pressure and shielding from deleterious cosmic radiation), the exotic meteorological and climatic conditions of Eden, which were the result of a strong greenhouse effect which produced a uniform semi-tropical climate over the globe with an absence of seasonal changes, storms and other modern weather disturbances—and even the absence of rainbows until after the Flood.

The canopy theory has been extended to "scientifically" explain even the most obscure biblical descriptions of antediluvian conditions. Creationist advocates very quickly produced competing variants, however. Some insist, by means of scientific arguments, that the canopy must have been composed of water in vapor form, while others have produced scientific arguments to show that it consisted of liquid water, and others have proposed models of ice canopies.

Creationist theorists are faced with the dilemma of distorting either science to make it fit the Bible, or their interpretation of the Bible to make it fit standard science. Additional, extra-biblical creations have been proposed by some creationist theorists in the attempt to devise a "scientific" creationism. Pointing to the similarity of organisms on different continents separated by whole oceans, Dudley Whitney argued that this refuted evolution, since the continents could not have moved (this was before the acceptance of continental drift). Whitney proposed that these similar forms were placed on other continents separately in a second creation following the Flood—"a very reasonable supposition provided the concept of creation can be allowed."

...if God created this world and the plants and animals upon it in the first place, He could replace destroyed plants and animals by a second creation, and the logical belief is that He did so, to some extent at least. (1961:35, 36]

Walter Galusha modified the Gap Theory to include a third creation, between the initial creation and the Adamic creation. This added creation included the cave-men found as fossils.

Harold Clark, attempting to correct some obvious scientific deficiencies of his mentor Price's Flood Geology, suggested, in his "ecological zonation theory," that the order of the geological strata was not entirely arbitrary, as Price had insisted. Bernard Northrup has strongly criticized Morris's Flood Geology as scientifically inadequate, and has hypothesized that there were multiple catastrophes in earth history, including considerable post-Flood geological activity. Glenn Morton likewise rejects Flood Geology and strict young-earth creationism, using an expanding earth model to scientifically account for the Genesis descriptions. The expanding earth hypothesis is also used by other creationists (including some at ICR) as an alternative to continental drift, though traditional Flood Geologists rely on the massive geophysical changes brought about by the Flood to account for the current makeup and distribution of continents. (All such creationist hypotheses must account for the "division of the earth [or land]" alluded to in Genesis "in the days of Peleg" shortly after the Flood.) Thomas

Barnes proposed an exponential decrease in the earth's magnetic field as proof of young-earth creationism. Barnes's hypothesis was immediately criticized for denying the well-established evidence for a series of shifts and reversals in the magnetic field over the geological ages, but creationist Russell Humphreys has recently modified it by suggesting that this whole series of reversals occurred within a brief period of time as a result of the Flood (1986).

An even more sensational example of creation-science hypothesizing is Barry Setterfield's claim that the speed of light has decreased exponentially since creation (1987). By means of this hypothesis, Setterfield solves the problem posed to young-earth creationists by the existence of stars located millions of light-years distance from earth. By also claiming that atomic decay rates and other physical constants have also slowed exponentially, he likewise accounts for the whole Genesis scenario of the formation of oceans and atmosphere, and movement of land masses. Setterfield's hypothesis has been enthusiastically championed in Bible-Science Association articles, but many other creationists—notably at ICR and CRS—have strenuously opposed it as scientifically naive.

Creationist theory will no doubt continue in this process of elaboration and diversification in response to new challenges by "evolutionist" science and in response to its own internal processes of cultural evolution. Opposition to evolution is deeply rooted and very broad. Creationism is resistant to refutation from science and logic since it has developed its own science and logic, with which it can counter all arguments.

BIBLIOGRAPHY

Acworth, Bernard

1929 *This Bondage*. London: J. Murray.

1934 *This Progress: The Tragedy of Evolution*. London: Rich & Cowan.

Adler, Mortimer J.

1937 *What Man Has Made of Man*. New York: Longmans Green.

1940 *Problems for Thomists*. New York: Sheed and Ward.

1967 *The Difference of Man and the Difference It Makes*. New York: Holt, Rinehart and Winston.

Ambassador College

1972 [1956] *The Origin of Life*. Pasadena CA: Worldwide Church of God.

American Scientific Affiliation

1948 *Modern Science and Christian Faith*. Wheaton IL: Van Kampen Press.

1986 *Teaching Science in a Climate of Controversy: A View from the American Scientific Affiliation*. Ipswich MA: Amer. Scientific Affil.

Andrews, E.H., W. Gitt, and W.J. Ouweneel, eds.

1986 *Concepts in Creationism*. Welwyn, Hert., U.K.: Evangelical Press.

Archer, Gleason L.

1982 *Encyclopedia of Bible Difficulties*. Grand Rapids MI: Zondervan.

Argyll, Duke of [George Douglas Campbell]

1867 *The Reign of Law*. London: Alexander Strahan.

N.d. *Primeval Man*. New York: George Routledge & Sons.

Armstrong, Garner Ted

1966 *The Fable of the First Fatal Flight*. Pasadena CA: Ambassador College.

1967 [1966] *The Amazing Archer Fish Disproves Evolution!* Pasadena CA: Ambassador College.

Armstrong, Garner Ted, and Paul W. Kroll

1968 *A Whale of the Tale, or—the Dilemma of Dolphins and Duckbills*. Pasadena CA: Ambassador College.

1971 [1967] *A Theory for the Birds*. Pasadena CA: Worldwide Church of God.

1973 *Our Awesome Universe*. Pasadena CA: Ambassador College.

Armstrong, Herbert W.

1978 [1959] *Did God Create a Devil?* Pasadena CA: Worldwide Church of God.

1985 *Mystery of the Ages*. New York: Dodd, Mead.

Artist, Russell

1966 “The Wonder of Life and Its Endless Varieties.” In *Behind the Dim Unknown* (J. Monsma, ed.).

1969 “The Concept of Homology.” *Creation Research Society Quarterly*: 6(1):55.

Austin, Steven A.

1984 *Catastrophes and Earth History*. El Cajon CA: Institute for Creation Research. ICR Technical Monograph No. 13.

Baerg, Harry J.

1972 *Creation and Catastrophe: The Story of Our Father's World*. Washington, DC: Review and Herald.

Baker, Alonzo, and Francis D. Nichol

1926 *Creation—Not Evolution*. Omaha NE: Pacific Press.

Bales, James D.

1975 *The Genesis Account and a Scientific Test*. Priv. pub. (Searcey AR).

Barker, Eileen

.....1979 “In the Beginning: Battle of Creationist Science Against Evolution.” In *On the Margins of Science* (Roy Wallis, ed.).

Barnes, Thomas G.

.....1983 [1973] *Origins and Destiny of the Earth's Magnetic Field*. El Cajon CA: Institute for Creation Research. ICR Technical Monograph No. 4.

.....1983 *Physics of the Future: A Classical Unification of Physics*. El Cajon CA: Institute for Creation Research.

.....1986 *Space Medium: The Key to Unified Physics*. El Paso, Texas: Geo/Space Research Foundation.

Barr, James

.....1981 *Fundamentalism*. London: SCM Press.

Bartoli, Giorgio

1926 *The Biblical Story of Creation*. New York: Harper.

Bartz, Paul A.

.....1986 "Can Extra-Biblical Scholarship Methods Measure or Correct the Canon of Scripture?" *Bible-Science Newsletter*: 24(8):1-2,5.

Bartz, Paul A., ed.

.....1985-1987 *Our Science Readers* series (9 vols.). Dubuque, Iowa: Kendall/Hunt.

Beach, Henry H.

.....N.d. [1912?] "Decadence of Darwinism." In *The Fundamentals*: Vol. III.

Beasley, Walter J.

.....1955 *Creation's Amazing Architect*. Bombay, India: Gospel Literature Service.

Beck, Horst Werner

.....1979 *Biologie und Weltanschauung: Gott der Schöpfer und Vollender und die Evolutions-konzepte des Menschen*. Neuhausen-Stuttgart: Hänssler.

.....1980 *Die Debatte um Bibel und Wissenschaft in Amerika*. Neuhausen: Hänssler.

Beisner, E. Calvin

.....1987 "Mutation Fixation: A Dead End for Macro-Evolution." *ICR Impact* series No. 166.

Belloc, Hilaire

.....1927a [1926] *Companion to Mr. Wells's Outline of History*. San Francisco: ESA.

.....1927b [1926] *Mr. Belloc Still Objects to Mr. Wells's Outline of History*. San Francisco: ESA.

Bennet, James E.

.....1941 *The Bible Defeats Atheism*. Grand Rapids MI: Zondervan.

Benson, Clarence

.....1938 [1929] *The Earth—The Theatre of the Universe: And a Scientific and Scriptural Study of the Earth's Place and Purpose in the Divine Program*. Chicago: Moody Press.

.....1937 *Immensity: God's Greatness Seen in Creation*. Chicago: Scripture Press.

Bergman, Jerry

.....1984 *The Criterion: Religious Discrimination in America*. Richfield MN: Onesimus.

Berry, R.J.

.....1975 *Adam and the Ape: A Christian Approach to the Theory of Evolution*.
London: Falcon Books.

Bertsch, Eberhard

1984 “Eindrücke vom ersten Europäischen Kreationistischen Kongress.” *Factum*:
Oct.: 33.

Bettex, F.

.....1901 *Science and Christianity*. New York: Hodder & Stoughton (George Doran).

Bhaktivedanta Institute

.....1984 *Origins—Higher Dimensions in Science*. Los Angeles: Bhaktivedanta
Institute.

Bhaktivedanta Swami, A.C.

.....1979 *Life Comes from Life*. Los Angeles: Bhaktivedanta Book Trust.

Bible-Science Association

.....1973a *Are You a Creation Evangelist?* Caldwell ID: BSA.

.....1973b *Can Life Be Created Through Science?* Caldwell ID: BSA.

.....1973c *Dinosaurs and Sin*. Caldwell ID: BSA.

.....1973d *Does Life Have Creative Powers?* Caldwell ID: BSA.

.....1973e *Is Noah's Ark on Mt. Ararat?* Caldwell ID: BSA.

.....1973f *Is the World Really 4.5 Billion Years Old?* Caldwell ID: BSA.

.....1973g *Is This Your Ancestor?* Caldwell ID: BSA.

.....1973h *The Stones Cry Out*. Caldwell ID: BSA.

.....1973i *Violence in the Bottom of the Grand Canyon*. Caldwell ID: BSA.

.....1973j *What You Should Know About Entropy*. Caldwell ID: BSA.

.....1974a *Dinosaurs and Catastrophe*. Caldwell ID: BSA.

.....1974b *How Old Is the Grand Canyon?* Caldwell ID: BSA.

.....1974c *Human Footprints and Dinosaur Tracks*. Caldwell ID BSA.

.....1974d *Is a Mountain Able to Witness for Christ?* Caldwell ID: BSA.

.....1974e *Lessons Taught by Minifossils in the Grand Canyon*. Caldwell ID: BSA.

.....1974f *What Is the Age of this Lava Flow?* Caldwell ID: BSA.

.....1974g *Would You Become a Bible-Believer if You Saw Noah's Ark on Mount Ararat?* Caldwell ID: BSA.

.....1985 *Proc. of the 11th Bible-Science Association National Conference*. Minneapolis: BSA.

“Biology Teachers’ Responses Stun Pollsters.”

.....1988 *Creation/Evolution Newsletter*: 8(5):7.

Bird, Wendell R.

.....1978 “Freedom of Religion and Science Instruction in Public Schools.” *Yale Law J.*:87(3):515-570.

.....1979a “Evolution in the Public Schools and Creation in Students’ Homes: What Creationists Can Do.” *ICR Impact* series No. 70.

.....1979b “Freedom from Establishment and Unneutrality in Public School Instruction and Religious School Regulation.” *Harvard J. Law and Public Policy*: Summer:125-205.

Bixler, R. Russell

.....1986 *Earth, Fire, and Sea: The Untold Drama of Creation*. Pittsburgh: Baldwin Manor Press.

Bliss, Richard B.

.....1984 *Origins: Two Models—Evolution, Creation*. El Cajon CA: Institute for Creation Research. Video, with accompanying teachers guide.

Blocher, Henri

.....1984 [1979] *In the Beginning: The Opening Chapters of Genesis*. Downers Grove IL: InterVarsity Press.

Boardman, William J., Robert Koontz, and Henry Morris

.....1973 [1971] *Science and Creation*. San Diego: Creation-Science Research Center.

Bouw, Gerardus D.

.....1984 *With Every Wind of Doctrine: Biblical, Historical and Scientific Perspectives on Geocentricity*. Cleveland: Tychonian Society.

.....1988-89 “As the World Turns.” *Bull. Tychonian Society*: No. 48.

Bowden, Malcolm

.....1981 [1977] *Ape-Men: Fact or Fallacy?* Kent, U.K.: Sovereign Publications.

Bowler, Peter

.....1984 *Evolution: The History of an Idea*. Berkeley: Univ. California Press.

Brand, Leonard

.....1978 "Footprints in the Grand Canyon." *Origins*: 5(2):64-82.

.....1979 "Field and Laboratory Studies on the Coconino Sandstone (Permian) Vertebrate Footprints and Their Paleocological Implications." *Palaeogeography, Palaeoclimatology, and Palaeoecology*: 28:25-38.

Brazo, Mark William

.....1983 *Theories of Origins: Do They Persist Despite Contrary Evidence?* M.S. thesis: Inst. for Creation Research.

Brice, William R.

.....1982 "Bishop Ussher, John Lightfoot and the Age of Creation." *J. Geological Education*: 30(1):18-24.

Bright, Bill

.....1970 *Come Help Change the World*. Old Tappan, N.J.: Fleming H. Revell.

Broocks, Rice

.....1985 *Change the Campus Change the World!* Gainesville FL: Maranatha Publications.

.....1987 "The Battle Has Just Begun" (audiotape). Talk presented at Nat'l Creation Conference: 8/2/87 (Seattle).

Brooks, Jim

.....1985 *Origins of Life*. Tring, Herts, U.K.: Lion Publishing.

Brown, Arthur I.

.....N.d. [1920s?] *Evolution and the Bible*. Los Angeles: Research Science Bureau.

.....1945 *Miracles of Science*. Findlay OH: Fundamental Truth Publishing.

.....N.d. [1940s?] *God and You: Wonders of the Human Body*. Findlay OH: Fundamental Truth.

Brown, J. Mellor

.....1838 *Reflections on Geology, Suggested by Perusal of Dr. Buckland's Bridgewater Treatise*. London: James Nisbet.

Bryan, William Jennings

.....1922 *In His Image*. New York: Fleming H. Revell.

.....N.d. [1925?] *The Bible or Evolution?* Murfreesboro TN: Sword of the Lord.

Bucaille, Maurice

.....1979 [1976] *The Bible, the Qur'an and Science*. Indianapolis: American Trust Publications.

.....1982 *What Is the Origin of Man?: The Answers of Science and the Holy Scriptures*. Paris: Seghers.

Buckland, William

.....1823 *Reliquiae Diluvianae*. London: J. Murray.

.....1836 *Geology and Mineralogy Considered with Reference to Natural Theology* (2 vols.). London: William Pickering. One of the Bridgewater Treatises.

Burdick, Clifford

.....1974 *Canyon of Canyons*. Minneapolis: Bible-Science Assoc.

Camp, Robert S., ed.

.....1972 *A Critical Look at Evolution*. Atlanta GA: Religion, Science and Communication Research and Development.

Carroll, Charles

.....1900 *The Negro a Beast; or, In the Image of God*. St. Louis MO: American Book and Bible House.

Carver, Wayne

.....N.d. *The Panorama of the Ages*. San Antonio TX: Christian Jew Foundation.

.....N.d. *The Science of Creation: Radio Sermons by Wayne Carver*. San Antonio TX: Christian Jew Foundation.

Cassio, W.W.

.....1964 "Evolution and Ethics." In *Another Look at Evolution* (Gordon Wilson, ed.).

Cavanaugh, Michael A.

.....1983 *A Sociological Account of Scientific Creationism: Science, True Science, Pseudoscience*. Ph.D. diss.: Univ. Pittsburgh.

Chesterton, Gilbert K.

.....1925 *The Everlasting Man*. New York: Dodd, Mead.

Chick, Jack T.

.....1972 *Big Daddy?*. Chino CA: Chick Publications.

.....1976 *The Ark*. Chino CA: Chick Publications.

.....1976 *Primal Man?*. Chino CA: Chick Publications.

.....1982 *The Godfather*. Chino CA: Chick Publications.

Chilton, David

.....1985 *Paradise Restored: An Eschatology of Dominion*. Tyler TX: Reconstruction Press.

Chittick, Donald E.

.....1984 *The Controversy: Roots of the Creation-Evolution Conflict*. Portland OR: Multnomah Press.

Clark, Gordon H.

.....1964 *The Philosophy of Science and Belief in God*. Nutley NJ: Craig Press.

.....1984 *The Biblical Doctrine of Man*. Jefferson MD: Trinity Foundation.

Clark, Harold W.

.....1929 *Back to Creation*. Angwin CA: Pacific Union College.

.....1940 *Genes and Genesis*. Mountain View CA: Pacific Press.

.....1946 *The New Diluvialism*. Priv. pub. (Angwin CA: Science Publications).

.....1947 *Creation Speaks*. Mountain View CA: Pacific Press.

.....1966 *Crusader for Creation: The Life and Writing of George McCready Price*. Mountain View CA: Pacific Press.

.....1977 *The Battle Over Genesis*. Wash., D.C.: Review and Herald.

Clark, Marlyn

.....1976 *Our Amazing Circulatory System: By Chance or Creation?* El Cajon CA: Institute for Creation Research. ICR Technical Monograph No. 5.

Clark, Robert E.D.

.....1958 [1946?] *Creation*. London: Tyndale Press.

.....1951 [1945] *Scientific Rationalism and Christian Faith*. London: Inter-Varsity Christian Fellowship.

.....1967 [1948] *Darwin: Before and After*. Chicago: Moody Press.

.....1961 [1949] *The Universe—Plan or Accident?* Grand Rapids MI: Zondervan.

Clark, T.H.

.....1980 “Dawson, Sir John William.” In *Dict. Sci. Biog.*

Clayton, John N.

.....1982 *Does God Exist?* Battle Creek MI: John Clayton. 13 films/videotapes.

.....1983 [1976] *The Source: Eternal Design or Infinite Accident?* Priv. pub. (South Bend IN).

Coffin, Harold G.

.....1969 *Creation—Accident or Design?* Wash., D.C.: Review and Herald.

.....1983 [1982] *Origin & Design.* Wash., D.C.: Review and Herald.

Cook, Charles

.....1981 *Exploding the Evolution Dogma Myth.* Priv. pub. (Grand TerraceCA).

.....1986a *If Evolution Is False, the Bible Must Be True!* Priv. pub. (Grand Terrace CA: Center for Creation Studies).

.....1986b *The Scopes Trial: A Nation Deceived.* Priv. pub. (Grand Terrace CA: Center for Creation Studies).

.....N.d. *The New Physics Revelation.* Priv. pub. (Grand Terrace CA: Center for Creation Studies).

Cook, Melvin A.

.....1957 “Where Is the Earth’s Radiogenic Helium?” *Nature*: 179(4552):213.

.....1966 *Prehistory and Earth Models.* London: Max Parrish.

Cook, Melvin A., and M. Garfield Cook

.....1967 *Science and Mormonism.* Utah: Deseret Books.

Coppedge, James F.

.....1973 *Evolution: Possible or Impossible?* Grand Rapids MI: Zondervan.

Cornell, George W.

.....[Date unknown: 1980s] “Analysis Challenges Multiple Authorship of Mosaic Books.” *Rapid City Journal.*

Courville, Cyril B.

.....1941 *The Recapitulation Theory.* Priv. pub. (Loma Linda CA).

Courville, Donovan A.

.....1971 *The Exodus Problem and Its Ramifications* (2 vols.). Loma Linda CA: Challenge Books.

Creation Science Movement

.....1981 *Particulars of the Creation Science Movement*. U.K.: Creation Science Movement.

Creation Science of Ontario

.....N.d. *Overwhelming Evidence for a Young Earth*. Toronto: Creation-Science Report.

.....1987 *Creation-Science Research Center Newsletter*: March. Creation-Science Research Center.

.....1971a *Beginning of the World: Creation, Evolution, and Modern Science*. Science and Creation Series: Book 7.

.....1971b *The Living World: Structure of Living Systems*. Science and Creation Series: Book 4.

.....1971c *Man and His World: Origin and Nature of Man*. Science and Creation Series: Book 5.

.....1971d *Our Changing World: The Nature of Physical Processes*. Science and Creation Series: Book 2.

.....1971e *This Wonderful World: Order and Design*. Science and Creation Series: Book 1.

.....1971f *The World of Long Ago: The Testimony of the Fossils*. Science and Creation Series: Book 3.

.....1971g *The World and Time: Age and History of the Earth*. Science and Creation Series: Book 8.

.....1971h *World Without End: The Origin and Structure of the Universe*. Science and Creation Series: Book 6.

Criswell, W[allie] W.

1972 [1957] *Did Man Just Happen?* Grand Rapids MI: Zondervan.

.....1969 *Why I Preach That the Bible Is Literally True*. Nashville: Broadman Press.

Croft, William J.

1984 *Creationism Is for Catholics*. Skaneateles NY: Catholic Creation Ministries.

.....1985 *Does Chemical Evolution Explain the Origin of Life?* Skanateles NY: Catholic Creation Ministries.

Crossroads Creation Series

.....1980 Crossroads Christian Communications: Toronto. 12 half-hour videos.

Culp, G. Richard

1975 *Remember Thy Creator*. Grand Rapids MI: Baker. Curtis, George Ticknor

.....1887 *Creation or Evolution? A Philosophical Inquiry*. New York: D. Appleton.

Custance, Arthur C.

.....1970 *Without Form and Void: A Study of the Meaning of Genesis 1:2*. Priv. pub. Brockville, Ont. , Canada).

.....1977 *Time and Eternity*. Grand Rapids MI: Zondervan. Doorways Papers series Vol. 6.

.....1979 *The Flood: Local or Global?* Grand Rapids MI: Zondervan. Doorways Papers series Vol. 9.

Cziment, Rick

.....[1980s] "New Testament to the Old Testament." Los Angeles newspaper article.

Daly, Reginald M.

.....1972 *Earth's Most Challenging Mysteries*. Craig Press: Nutley NJ.

.....1984 *It's Science Fiction—It's a Fraud*. Little Rock AR: James J. Kelly (co-pub. with R.M. Daly).

Dana, James Dwight

.....1856-1857 "Science and the Bible: A Review of the Six Days of Creation of Prof. Tayler Lewis." *Bibliotheca Sacra*: 13:80-130,731-765; 14:388-412,461-524.

.....1880 "*Creation: Or the Biblical Cosmogony in the Light of Modern Science*." *Bibliotheca Sacra*: 42:201-224.

Dankenbring, William F.

.....N.d. [1970s] *Did God Create the Universe?: A New Look at the Creation/Evolution Controversy*. Unpub. MS.

.....1976 *The Creation Book for Children*. Altadena CA: Triumph Publishing.

.....1978 *Beyond Star Wars*. Altadena CA: Triumph Pub.

.....1979 [1975] *The First Genesis: The Saga of Creation vs Evolution*. Altadena CA: Triumph Pub.

Davidheiser, Bolton

.....1969 *Evolution and Christian Faith*. Phillipsburg NJ: Presbyterian and Reformed.

.....1977 [1972] *To Be As God: The Goals of Modern Science*. Nutley NJ: Presbyterian and Reformed.

Davidson, Phil

.....Forthcoming. *The Origin of Human Races: A Creation Perspective*.

Davies, L. Merson

.....1953 [1943] *The Bible and Modern Science*. London: T.& A. Constable.

Davis, John Jefferson

.....1986 *Christ's Victorious Kingdom: Postmillennialism Reconsidered*. Grand Rapids MI: Baker Book House.

Dawn Bible Students Assoc.

.....1952 *Creation*. East Rutherford NJ: Dawn Bible Students.

N.d. *The Creator's Grand Design*. East Rutherford NJ: Dawn Bible Students.

Dawson, Sir John William

.....1882 *Facts and Fancies in Modern Science*. Philadelphia: American Baptist Publication Society.

.....1882 [1875] *Nature and the Bible*. New York: R. Carter.

.....1887 [1872] *The Story of the Earth and Man*. London: Hodder and Stoughton.

.....1894 *The Meeting-Place of Geology and History*. New York: Fleming H. Revell.

.....1895 *The Historical Deluge in Its Relation to Scientific Discovery and to Present Questions*. New York: Fleming H. Revell.

Dawson, William Bell

.....1925 *Forethought in Creation*. Chicago: Bible Inst. Colportage Assoc. Evangel Book series.

.....1926 *Evolution Contrasted with Scripture Truth*. Chicago: Bible Inst. Colportage Assoc.

.....N.d. [1932] *The Bible Confirmed by Science*. London: Marshall, Morgan and Scott.

.....1932 *Is Evolution True? Error, and the Way of Truth.* London: Marshall, Morgan and Scott.

Dean, Douglas

.....1979 "Evolution Support Critiqued." In *Repossess the Land* (Bible-Science Assoc.).

de Camp, L. Sprague

.....1969 "The End of the Monkey War." *Scientific American*: 220(2):15-21.

de Grazia, Alfred, Ralph Juergens, and Livio Stecchini, eds.

.....1966 *The Velikovsky Affair: Scientism vs. Science.* New Hyde Park NY: University Books.

DeHaan, M.R.

.....1962 *Genesis and Evolution.* Grand Rapids MI: Zondervan.

DeMar, Gary

1982 *God and Government: A Biblical and Historical Study.* Vol. 1. Atlanta GA: American Vision Press.

Dennert, Eberhard

.....1904a *At the Deathbed of Darwinism.* Burlington IA: German Literary Board.

.....1904b *Bibel und Naturwissenschaft.* Stuttgart, Germany: M. Kielmann.

.....1907 *Moses oder Darwin?* Stuttgart, Germany: M. Kielmann.

Dewar, Douglas

.....1931 *Difficulties of the Evolution Theory.* London:

Edward Arnold.

.....N.d. [1936] *Man: A Special Creation.* London: Thynne.

.....1938 *More Difficulties of the Evolution Theory.* London: Thynne.

.....1948 [1937] *A Challenge to Evolutionists.* Uplift Books.

.....1957 *The Transformist Illusion.* Murfreesboro TN: DeHoff Publications.

Dewar, Douglas, L. Merson Davies, and J.B.S. Haldane

.....1949 *Is Evolution a Myth?* London: C.A. Watts / Paternoster Press (co-pub.).

Dewar, Douglas, and Frank Finn

.....1909 *The Making of Species.* London: John Lane the Bodley Head.

Dewar, Douglas, and H.S. Shelton

.....1947 *Is Evolution Proved?: A Debate Between Douglas Dewar and H.S. Shelton*.
London: Hollis and Carter.

De Wit, J.J. Duyvene

.....1963 "The Paleontological Record and the Origin of Man." In *Proc. Scientific Soc. Univ. Orange Free State*.

DeYoung, Donald B.

.....1985 "Design in Nature: The Anthropic Principle." El Cajon CA: Institute for Creation Research. ICR *Impact* series No. 149.

Dick, Thomas

.....1829 [1826] *The Christian Philosopher; or The Connection of Science and Philosophy with Religion*. New York: Carvill.

Dictionary of Scientific Biography

.....1980 New York: Charles Scribners Sons. American Council of Learned Societies. C. Gillispie, gen. ed.

Dimbleby, Jabez

.....1902 *The Date of Creation: Its Immovable and Scientific Character*. London: E. Nister.

Di Salvatore, Bryan

.....1988 "Vehement Fire: II." *New Yorker*: May 4; 36-58.

Dixon, A.C., ed.

.....N.d. [1910?] *The Fundamentals*. Vol. II.

.....N.d. [1911?] *The Fundamentals*. Vols. IV, V.

Dooyeweerd, Herman

.....1953-1957 [1935-1937] *A New Critique of Theoretical Thought*. Philadelphia: Presbyterian and Reformed.

Dov, Pincas [Philip Warsaw]

1953 *Genesis, Mother of Sciences*. Chicago.

Draper, John William

.....1875 *History of the Conflict Between Religion and Science*. New York: D. Appleton.

Duncan, Homer

.....1978 *Evolution: The Incredible Hoax*. Lubbock TX: Missionary Crusader.

Dwight, Thomas

.....1927 *Thoughts of a Catholic Anatomist*. London: Longmans, Green.

Edwards, Frederick, and Stephen McCabe

.....1987 "Getting Out God's Vote: Pat Robertson and the Evangelicals." *The Humanist*: 47(3):4-10,36.

Ellsworth, Ward E., and Kay D. Ellsworth

.....1975 *Identity Crisis; and 'Science' Says: My Brother's Keeper? Or My Keeper's Brother?* Priv. pub. (Issaquah WA).

Ellwanger, Paul

.....1981 "Creationist Materials for Catholics." *Creation Social Sciences and Humanities Quarterly*: IV(2):4-5.

Elmendorf, R.G.

.....1977 "Celestial Motion Illustrator." Suppl. to *Bull. Tychonian Soc.*: #15.

.....1977 "Consequences." Suppl. to *Catholic Creationist*: June 18.

.....1978 *How to Scientifically Trap, Test and Falsify Evolution*. Bairdford PA: Bible-Science Assoc. of Western Penn.

.....1988-89 "But a Geocentrist." *Bull. Tychonian Soc.*: #48.

England, Don

.....1972 *A Christian View of Origins*. Grand Rapids MI: Baker Book House.

.....1983 *A Scientist Examines Faith and Evidence*. Delight AR: Gospel Light Publishing.

Enoch, H.

.....1967 *Evolution or Creation?* Welwyn, Herts, U.K.: Evangelical Press.

Epperson, A. Ralph

.....1985 *The Hidden Hand: An Introduction to the Conspiratorial View of History*. Tucson AZ: Publius Press.

Estep, Howard C.

.....1969 *Evolution: True or False*. Colton CA: World Prophetic Ministry.

.....1981 *Jehovah—Adam—And You!* Colton CA: World Prophetic Ministry.

.....1986 *Eons of Ages Ago!* Colton CA: World Prophetic Ministry.

Fairholme, George

.....1833 *General View of the Geology of Scripture*. Philadelphia: Key and Biddle.

Fairhurst, Alfred

.....1897 *Organic Evolution Considered*. Cincinnati: Standard Publishing. (3rd ed.; has Preface dated 1911.)

Faulstich, Eugene W.

.....1983 *Moses the Astronomer and Historian par Excellence*. Rossie IA: Chronology-History Research Inst.

.....1986 *History, Harmony and the Hebrew Kings*. Spencer IA: Chronology Books.

.....N.d. *Absolute Chronology of the Universe*. Rossie IA: Chronology-History Research Inst.

Ferch, Arthur J.

.....1975 *In the Beginning*. Wash.; D.C.: Review and Herald.

Ferguson, Les

.....1976 *Its About Time*. New York: Vantage Press.

Ferris, A.S.

.....N.d. *The Conflict of Science and Religion*. Vancouver, B.C., Canada: Assoc. of the Covenant People.

Fezer, Karl D.

.....1984 "Harper's Comforts Creationists." *Creation/Evolution Newsletter*: 4(6):4-5.

.....1986 "Arkansas Creationist Questionnaire." *Creation/Evolution Newsletter*: 6(5):7.

.....1988 "Christian Reformed Church Supports Calvin College Science Professors." *Creation/Evolution Newsletter*: 8(4):16-17.

.....1988 "Der Kreationismus (= 'Schöpfungswissenschaft' or 'Creation Science')." *Creation/Evolution Newsletter*: 8(6):9-11.

Field, A.N.

.....1971 [1941] *The Evolution Hoax Exposed*. Rockford IL: TAN. (1971 TAN ed. is reprint of 1971 ed. pub. By Christian Book Club of America. Orig. 1941; titled *Why Colleges Breed Communists*.)

Fields, Weston W.

.....1976 [1973] *Unformed and Unfilled: A Critique of the Gap Theory*. Nutley NJ: Presbyterian and Reformed.

Filby, Frederick A.

.....1964 *Creation Revealed: A Study of Genesis Chapter One in the Light of Modern Science*. Westwood NJ: Fleming H. Revell.

.....1970 *The Flood Reconsidered*. London: Pickering & Inglis.

Films for Christ

.....1979 *The Great Dinosaur Mystery* (film).

Fleming, Sir John Ambrose

.....1933 *Evolution or Creation?* London: Marshall, Morgan and Scott.

.....1935 *Modern Anthropology versus Biblical Statements on Human Origin*. Westminster, U.K.: Victoria Inst.

Fothergill, Philip G.

1953 *Historical Aspects of Organic Evolution*. New York: Philosophical Library.

.....1961 *Evolution and Christians*. London: Longmans, Green.

Fox, Norman

.....1981 *Fossils: Hard Facts from the Earth*. San Diego: Creation-Life.

Frame, Randy

.....1984 "A Team of Cult Watchers Challenges a Growing Campus Ministry." *Christianity Today*: Aug. 10.

Freeman, Alan, and Betty Mensch

.....1987 "Religion as Science / Science as Religion: Constitutional Law and the Fundamentalist Challenge." *Tikkun*: 2(5):64-71.

French, Joel, and Jane French

.....1979 *War Beyond the Stars: Angelic Encounters*. Harrison AR: New Leaf Press.

Friedman, Richard Elliott

.....1987 *Who Wrote the Bible?* New York: Summit Books.

Frye, Roland Mushat

.....1983 *Is God a Creationist?: The Religious Case Against Creation-Science*. New York: Charles Scribner's Sons.

Gabel, Peter

.....1987 "Creationism and the Spirit of Nature." *Tikkun*: 2(5):55-63.

Gaebelein, Arno

.....1933 *The Conflict of the Ages*. Neptune NJ: Loizeaux Bros.

Gange, Robert A.

.....1986 *Origins & Destiny*. Waco, Texas: Word Books.

Gardner, Martin

.....1957 [1952] *Fads and Fallacies in the Name of Science*. New York: Dover.

.....1980 "Mathematical Games." *Sci. Amer.*: 243(3):20-24.

.....1983 "The Bible and God's Numerology." In *Order and Surprise* (Buffalo NY: Prometheus Books).

Gatewood, Willard

.....1969 *Controversy in the Twenties: Fundamentalism Modernism, and Evolution*. Nashville: Vanderbilt Univ. Press.

Geisler, Norman

.....1982 *The Creator in the Courtroom: "Scopes II"*. Milford MI: Mott Media.

Geisler, Norman, and J. Kerby Anderson

.....1987 *Origin Science: A Proposal for the Creation-Evolution Controversy*. Grand Rapids MI: Baker Book House.

Gentry, Robert V.

.....1986 *Creation's Tiny Mystery*. Knoxville TN: Earth Science Associates.

Gilbert, Dan

.....1935 *Evolution: The Root of All Isms*. San Diego: The Danielle Publishers.

.....1944 [1933] *Crucifying Christ in Our Colleges*. Wash., D.C.: The Danielle Publishers.

Gillespie, Neal C.

.....1979 *Charles Darwin and the Problem of Creation*. Chicago: Univ. Chicago Press.

Gillispie, Charles Coulston

.....1951 *Genesis and Geology*. Cambridge MA: Harvard Univ. Press.

Gish, Duane T.

.....1972 *Speculations and Experiments Related to Theories on the Origin of Life*. San Diego: Institute for Creation Research. ICR Technical Monograph No. 1.

.....1979 *Evolution? The Fossils Say No!* San Diego: Creation-Life.

Gish, Duane T., and Arthur C. Cunningham, eds.

.....1986 *The Christian World View of Science and Technology*. Mountain View CA: Coalition on Revival. A COR "Sphere Document."

Gish, Duane T., and Donald Rohrer, eds.

.....1978 *Up With Creation!* San Diego: Creation-Life.

Gitt, Werner

.....1986 “The Flight of Migratory Birds.” *ICR Impact* series No. 159.

Gladstone, William E.

.....1896 [1890] *The Impregnable Rock of Holy Scripture*. Philadelphia: Henry Altemus.

Glashouwer, Willem J.J.

.....1980 *Het Onstaan van der Wereld*. The Netherlands: Stichting De Evangelische Omroep.

Gloag, Paton J.

.....1859 *The Primeval World: A Treatise on the Relations of Geology to Theology*. Edinburgh: T.& T. Clark.

Gordon, W.R.

.....1878 *The Science of Revealed Truth Impregnable as Shown by the Argumentative Failures of Infidelity and Theoretical Geology*. New York: Reformed Churches of America.

Gosse, Philip Henry

.....1857 *Omphalos: An Attempt to Untie the Geological Knot*. London: Van Voorst.

Gould, Stephen Jay

.....1983 “Nonmoral Nature.” In *Hen’s Teeth and Horse’s Toes*. New York: W.W. Norton.

Grace Theological Seminary

[1979] *Biblical Creationism*. Winona Lake IN: Grace Theological Seminary.

Graebner, Theodore C.

.....1921 *Evolution: An Investigation and a Criticism*. Milwaukee: Northwestern Publishing House.

.....1925 *Essays on Evolution*. St. Louis MO: Concordia.

.....1943 [1932] *God and the Cosmos: A Critical Analysis of Atheism, Materialism and Evolution*. Grand Rapids MI: William B. Eerdmans.

Grebe, John J.

.....1964 “Science Is Now Proving the Genesis Creation Account Is Correct.” *Creation Research Society Quarterly*: 1(1) :5-6.

.....1967 “DNA Studies in Relation to Creation Concepts.” *Creation Research Society Quarterly*: 4(1):23.

Green, Melody, and Sharon Bennett

.....1984 *The Crime of Being Alive*. Lindale TX: Last Days Ministries.

Gutzke, Manford

.....1975 *Plain Talk on Genesis*. Grand Rapids MI: Zondervan.

Guyot, Arnold

.....1884 *Creation; or The Biblical Cosmology in the Light of Modern Science*. New York: Charles Scribner's.

Hagin, Kenneth E.

.....1983 *The Origin and Operation of Demons*. Tulsa OK: RHEMA Bible Church.

Haigh, Paula

.....N.d. [1975] *What's Wrong with Evolution?* Caldwell ID: Bible-Science Assoc. (2 eds., with different pagination). (Also pub. by Catholic Center for Creation Res.: Louisville KY).

Hall, Marshall, and Sandra Hall

.....1975 *The Truth: God or Evolution?* Grand Rapids MI: Baker Book House.

Hall, Verna M., ed.

.....1962 *Self-Government with Union*. Christian History of the Constitution Series, Vol. II. San Francisco: American Christian Constitution Press.

Halstead, Beverly

.....1985 “Anti-Darwinian Theory in Japan.” *Nature*: 317: 587-589.

Ham, Ken

.....1983 *The Relevance of Creation*. “Casebook II”: suppl. to *Ex Nihilo*. Sunnybank, Australia: Creation Science Foundation.

.....1987 *The Lie: Evolution*. El Cajon CA: Master Books.

Hamilton, Floyd E.

.....1946 [1931] *The Basis of Evolutionary Faith: A Critique of the Theory of Evolution*. London: James Clarke.

Hampden, John

.....1880 *The Earth in Its Creation, Its Chronology, Its Physical Features, and the One Alon Portion of the Universe Adapted to Man's Occupation and Service*. London: W.H. Guest.

Hand, Sohn Raymond

.....1972 [1953] *Why I Accept the Genesis Record*. Lincoln NE: Back to the Bible.
(1972 ed. rev, by Bolton Davidheiser.)

Handrich, Theodore L.

.....1953 *The Creation: Facts Theories, and Faith*. Chicago: Moody Press.

Hanoka, Yaacov

.....[1980s?] "Torah, Science and Carbon 14." *B'Or Ha'Torah*.

Hanson, James

.....N.d. [1979?] *A New Interest in Geocentricity*. Minneapolis: Bible-Science Assoc.

Hardie, Alexander

.....1924 *Evolution: Is It Philosophical, Scientific, or Scriptural*. Los Angeles: Times-Mirror Press.

Harris, R. Laird

.....1964 "Dead Sea Scrolls." *Creation Research Society Quarterly Annual*: 10-12.

.....1971 *Man—God's Eternal Creation: Old Testament Teaching on Man and His Culture*. Chicago: Moody Press.

Hasskarl, Gottlieb C.H.

.....1885 *The Terrible Catastrophe; or Biblical Deluge; Illustrated and Corroborated by Mythology, Tradition, and Geology, to Which is Added a Brief Interpretation of the Creation, with Notes from Theologians, Philosophers, and Scientists*. Philadelphia: C. Henry.

.....1898 *The Missing Link; or The Negro's Ethnological Status*. Chambersburg PA: Democratic News.

Hayward, Alan

.....1978 *God Is: A Scientist Shows Why It Makes Sense to Believe in God*. Nashville: Thomas Nelson.

.....1985 *Creation and Evolution: The Facts and Fallacies*. London: Triangle.

Hearn, Walter R.

.....1987 "Response to C/E N's Criticisms of ASA Booklet." *Creation/Evolution Newsletter*: 7(1):16-19.

Hedtke, Randall

.....1983 *The Secret of the Sixth Edition*. Los Angeles: Vantage Press.

Hefley, James C.

.....1986 "Christian Scientific Group Plans Response to 'Cosmos.'" *Christianity Today*: 30(13):50.

Heindel, Max

.....1973 [1909] *The Rosicrucian Cosmo-Conception; or Mystic Christianity*. Oceanside CA: Rosicrucian Fellowship.

Heinze, Thomas F.

.....1973 [1970] *Creation Vs. Evolution Handbook*. Grand Rapids MI: Baker Book House.

Hepp, Valentine

.....1930 *Calvinism and the Philosophy of Nature*. Grand Rapids MI: William B. Eerdmans.

Herget, John F.

.....1923 *Questions Evolution Does Not Answer*. Cincinnati: Standard Publishing.

Higley, L. Allen

.....1940 *Science and Truth*. New York: Fleming H. Revell.

Hills, Edward F.

.....1979 [1964] *Space Age Science*. Des Moines IA: Christian Research Press.

.....1967 *Evolution in the Space Age*. Des Moines IA: Christian Research Press.

Hinn, Benny

.....1984 *War in the Heavens*. Winter Park FL: Benny Hinn Ministries.

Hitchcock, Edward

.....1836 *The Connection Between Geology and the Mosaic Account of the Creation*. Edinburgh: T. Clark.

.....1837 *The Historical and Geological Deluges Compared*. Edinburgh: T. Clark.

.....1841 *Elementary Geology*. Amherst MA: J.S.& C. Adams.

.....1851 *The Religion of Geology and Its Connected Sciences*. Boston: Phillips, Sampson.

Hodge, Charles

.....1874 *What Is Darwinism?* New York: Scribner, Armstrong.

.....1883 *Systematic Theology*. Vol. I. New York: Charles Scribner's Sons.

Hodgman, Stephen Alexander
.....1886 [1881] *Moses and the Philosophers*. Philadelphia: Ferguson Bros. (1881 ed. titled *Plain Facts in Plain Words*.)

Hoeksema, Homer C.
.....1966 *In the Beginning God...* Grand Rapids MI: Reformed Free Publishing Assoc.

Hoen, Reu E.
.....1951 *The Creator and His Workshop*. Mountain View CA: Pacific Press.

Hofstadter, Richard
.....1962 *Anti-Intellectualism in American Life*. New York: Vintage (Random House).

Hoggan, David L.
.....1985 [1965] *The Myth of the 'New History': Techniques and Tactics of the Mythologists of American History*. Torrance CA: Inst. for Historical Review. (Orig. pub. by Craig Press: Nutley NJ).

.....1989 [1961] *The Forced War*. Costa Mesa CA: Inst. for Historical Review.

Holbrook, David L.
.....1908 *The Panorama of Creation: As Presented in Genesis Considered in Relation with the Autographic Record as Deciphered by Scientists*. Philadelphia: The Sunday School Times Co.

Hoover, Arlie J.
.....1977 *Fallacies of Evolution: The Case for Creation*. Grand Rapids MI: Baker Book House.

.....1981 *The Case for Teaching Creation*. Joplin MO: College Press (Know the Truth).

Hooykaas, R[eijer]
.....1972 *Religion and the Rise of Modern Science*. Grand Rapids MI: William B. Eerdmans.

Hopkins, Evan
.....1865 *Cosmogony, or the Principles of Terrestrial Physics*. London: Longman, Green, Longman, Roberts and Green.

Horigan, James E.
.....1979 *Chance or Design?* New York: Philosophical Library.

Howe, George

.....1987 “Review of Glenn Morton’s Geology of the Flood.” *Creation Research Society Quarterly*: 24(1):3738.

Howgate, Michael E., and Alan J. Lewis

.....1984 “Creationism in Confusion.” *Nature*: 311:703.

Howitt, John R.

.....N.d. [1964] *Karl Marx as an Evolutionist*. Hants, U.K.: Evolution Protest Movement. EPM pamphlet No. 111.

.....1976 *A Biblical Cosmology*. Toronto: Int’l Christian Crusade.

.....N.d. [1981] *Evolution: Science Falsely So-Called*. Toronto: Int’l Christian Crusade.

Howorth, Henry

.....1893 *The Glacial Nightmare and the Flood: A Second Appeal to Common Sense from the Extravagance of Some Recent Geology*. London: Sampson, Low, Marston.

Hull, David L.

.....1973 *Darwin and His Critics*. Chicago: Univ. Chicago Press.

Humphreys, D. Russell

.....1986 “Reversals of the Earth’s Magnetic Field During the Genesis Flood.” In *Proc. First Int’l Conf. on Creationism: Vol II*.

Hutchinson, John

.....1748 *Moses’s Principia*. London: J. Hodges.

Hyers, Conrad

.....1984 *The Meaning of Creation*. Atlanta GA: John Knox

Ingram, T. Robert

.....1968 “Introduction.” In *A Symposium on Creation* (H. Morris et al.).

Institute for Creation Research

.....1979 “Resolution for Balanced Presentation of Evolution and Scientific Creationism.” *ICR Impact* series No. 71.

.....[1985] *1985-1987 Graduate School Catalog*. Santee CA: ICR.

International Council on Biblical Inerrancy

.....1982 *Summit II: Hermeneutics Papers*. Oakland CA: ICBI.

.....1983 “Chicago Statement on Inerrancy and Hermeneutics.”

ICBI Catalog. Oakland CA: ICBI.

.....N.d. [1980s] *Inerrancy: Does It Matter?*. Oakland CA: ICBI.

“Israelis Challenge Evolution Theory.”

.....1983 *Torrance Daily Breeze*: April 30.

Jackson, Wayne

.....1980 *The Mythology of Modern Geology: A Refutation of Evolution's Most Influential Argument*. Stockton CA: Apologetics Press.

.....1985 “Premillennialism and Biblical Creationism.” *Reason & Revelation*: V(5):1-4.

Jackson, Wayne, and Bert Thompson

.....1979 *Evolutionary Creationism: A Review of the Teachings of John Clayton*. Montgomery AL: Apologetics Press.

Jaki, Stanley L.

.....1979 *The Origin of Science and the Science of Its Origin*. South Bend IN: Regnery/Gateway.

James, Constantin

.....1892 [1877] *On Darwinism, or the Man-Ape*. Paris: E. Plon. (Rev. ed. 1892 [1882?], titled *Moses and Darwin: The Man of Genesis Compared with the Man-Ape, or Religious Education Opposed to Atheistic*.)

Jamieson, Robert, A.R. Fausset, and David Brown

.....1948 [1871] *Critical and Expository Commentary on the Old and New Testaments*. Grand Rapids MI: William B. Eerdmans.

Jauncey, James H.

.....1961 *Science Returns to God*. Grand Rapids MI: Zondervan.

Javor, George T.

.....1979 *Once Upon a Molecule*. Nashville: Southern Publishing.

Jeffery, Duane E.

.....1973 “Seers, Savants, and Evolution: The Uncomfortable Interface.” *Dialogue; A Journal of Mormon Thought*: 8(314):41-75.

.....1983 “Dealing with Creationism.” *Evolution*: 37(5): 1097-1100.

Jefferys, William H.

.....1987 “‘Sun, Stand Thou Still’: An Astronomical Critique of a Creationist Biblical Chronology.” *Creation/Evolution*: XXI:18-30.

Jepson, J.W.

.....1978 *The Social Consequences of Evolution*. U.K.: Evolution Protest Movement. EPM pamphlet No. 218.

Jews for Jesus

.....N.d. [1980s] *Evolution*. San Francisco: Jews for Jesus.

Johnson, J.W.G.

.....1976 *The Case Against Evolution*. Louisville KY: Catholic Center for Creation Research.

.....1982 *The Crumbling Theory of Evolution*. Priv. pub. (Brisbane, Australia).

Johnson, Paul S.L.

.....1938 *Creation*. Epiphany Studies in the Scriptures: Series Two. Philadelphia: Paul S.L. Johnson.

Juergens, Ralph E.

.....1966 "Minds in Chaos." In *The Velikovsky Affair* (de Grazia, et al., eds.).

Kachur, Victor

.....1983 *The World That Was*. Priv. pub. (Dublin OH).

Kang, C.H., and Ethel R. Nelson

1979 *The Discovery of Genesis: How the Truths of Genesis Were Found Hidden in the Chinese Language*. St. Louis MO: Concordia.

Katter, Reuben Luther

.....1967 *Creationism: The Scientific Evidence of Creator Plan and Purpose*. Minneapolis: Theotes Logos Research.

.....1984 [1967] *The History of Creation and Origin of the Species: A Scientific-Theological Viewpoint*. Minneapolis: Theotes-Logos Research.

Kearley, F. Furman

.....N.d. (1974?) *The Effect of Evolution on Modern Behavior*. Montgomery AL: Apologetics Press.

Keith, Bill

.....1982 *Scopes II: The Great Debate*. Shreveport LA: Huntington House.

Kennedy, D. James

.....1977 *New Evidences for Creation*. Ft. Lauderdale FL: Coral Ridge Ministries.

.....1980 *Why I Believe*. Waco TX: Word Books.

.....1981 *The Collapse of Evolution*. Ft. Lauderdale FL: Coral Ridge Ministries.

.....1983 *The Crumbling of Evolution*. Ft. Lauderdale FL: Coral Ridge Ministries.

.....1986 *Evolution's Bloopers and Blunders*. Ft. Lauderdale FL: Coral Ridge Ministries.

.....1986 *Origins: Creation or Evolution?* Ft. Lauderdale FL: Coral Ridge Ministries.

.....1987 *Creationism: Science or Religion?* Ft. Lauderdale FL: Coral Ridge Ministries.

.....1988 *The Case for Creation* (film). Coral Ridge Ministries and Films for Christ.

Keown, Duane

.....1986 "What Utah Children Believe." *The Humanist*: 46(4):21-26.

Keyser, Leander

.....1925 *The Problem of Origins*. New York: Macmillan.

Khalifa, Rashad A.

.....1982 *Creation: Why We Must Teach It in the Schools*.

Denver: Islamic Productions.

.....1986 *Evolution or Creation: The Final Argument* (video). Tucson AZ: Renaissance Inst.

.....1987 "God-Inspired Translations vs. Satan Inspired Translations." *Muslim Perspective*: March:1-2.

.....N.d. "Let the World Know: God's Message to the World" (flyer).

Khang, Kiat Tien

.....1950 *Genesis and the Chinese*. 1985 reprint by Leavesof-Autumn Books (Payson AZ).

Kik, J. Marcellus

.....1971 *An Eschatology of Victory*. Nutley NJ: Presbyterian and Reformed.

Kilgore, Charles

.....1986 "The Special Rules of Interpretation" (bookmark). Stafford CT: D.L. Cooper Press.

Kim, Young-Gil

.....1986 *Creation Science in Korea*. Institute for Creation Research: *Impact* series No. 151 [misnumbered: should be No. 152].

Kindell, Thomas J.

.....1985 *Evolution on Trial*. Priv. pub. (PomonaCA).

Kirby, Rodney N.

.....1989 "Education and the Ten Commandments." *Biblical Worldview*: 5(2):6-8.

Kirby, William

.....1835 *On the Power, Wisdom and Goodness of Man as Manifested in the Creation of Animals and in Their History, Habits, and Instincts*. 2 vols. London: Pickering. One of the Bridgewater Treatises.

Klaaren, Eugene M.

.....1977 *Religious Origins of Modern Science: Belief in Creation in Seventeenth-Century Thought*. Grand Rapids MI: William B. Eerdmans.

Kline, Theodore

.....1983 *Cosmic Patterns and the Bible*. Winona MN: Justin Books (Trinity Pub.).

Klotz, John N.

.....1970 [1955] *Genes, Genesis, and Evolution*. St. Louis MO: Concordia.

.....1971 *Ecology Crisis: God's Creation and Man's Pollution*. St. Louis MO: Concordia.

.....1985 *Studies in Creation*. St. Louis MO: Concordia.

Knaub, Clete

.....1983 *A Critique of Molecular Homology*. M.S. thesis: Inst. for Creation Research.

Kofahl, Robert E.

.....1980 [1977] *Handy Dandy Evolution Refuter*. San Diego: Beta Books.

.....1984 "A Proposal to Eliminate the Deleterious Effects of Religious Beliefs upon Science and Education." *Origins Research*: 7(1):8-9.

.....1989 "The Hierarchy of Conceptual Levels for Scientific Thought and Research." *Creation Research Society Quarterly*: 26(1):12-14.

Kofahl, Robert E., and Kelly Segraves

.....1975 *The Creation Explanation: A Scientific Alternative to Evolution*. Wheaton IL: Harold Shaw.

Korthals, Richard G.

.....1972 "There Was Evening—And There Was Morning." In *Creation, Evolution and God's Word* (P. Zimmerman, ed.).

Kurtz, Johann Heinrich

.....1857 [1842] *The Bible and Astronomy*. Philadelphia: Lindsay & Blackiston.

Kuyper, Abraham

.....1931 *Lectures on Calvinism*. Grand Rapids MI: Wm. B. Eerdmans.

LaHaye, Tim

.....1980 *The Battle for the Mind*. Old Tappan NJ: Fleming H. Revell.

LaHaye, Tim, and John Morris

.....1976 *The Ark on Ararat*. San Diego: Creation-Life / Nashville: Thomas Nelson (co-pub.).

Lammerts, Walter E.

.....1965 "Mutations and Evolution." In *The Challenge of Creation* (W. Lang, ed.).

.....1974 "The Creationist Movement in the United States: A Personal Account." *J. Christian Reconstruction*: 1(1):49-63.

Lammerts, Walter E., ed.

.....1971 *Scientific Studies in Special Creation*. Nutley NJ: Presbyterian and Reformed.

.....1973 [1970] *Why Not Creation?* Grand Rapids MI: Baker Book House.

Lang, Walter

.....1968 *The Mythology of Evolution*. Caldwell ID: Bible-Science Assoc.

.....1985 "History of Recent Creationism and Its Future" (audiotape). Feb. 16 lecture to San Fernando Valley Bible-Science Assoc.

.....1986a "The Biblical Definition of Science." *The Ark Today*: 1(4):6-7.

.....1986b "A Christian's Responsibility in Science." *The Ark Today*: I(3):11-15.

.....1986c "Constraints." *The Ark Today*: I(2?):5-6 [Aug.].

.....1987 "Traveling with Walter Lang." *The Ark Today*: II(3):8-11.

.....N.d. *Evangelism Program*. Bible-Science Assoc.

Lang, Walter, and Valeria Lang

.....1984 *Two Decades of Creationism*. Priv. pub. (Minneapolis).

Lang, Walter, ed.

.....1965 *The Challenge of Creation*. Caldwell ID: Bible-Science Assoc.

.....1972 *A Challenge to Education*. Caldwell ID: Bible-Science Assoc.

.....1974a *A Challenge to Education II: Popular Level Essays on Creationism*.
Caldwell ID: Bible-Science Assoc.

.....1974b *A Challenge to Education II: Technical Essays on Creation*. Caldwell ID:
Bible-Science Assoc.

.....1975 *Unidentified Flying Objects*. Caldwell ID: Bible-Science Assoc.

Larkin, Clarence

.....1920 [1918] *Dispensational Truth, or God's Plan and Purpose in the Ages*.
Philadelphia: Rev. C. Larkin.

Larson, Bob

.....1982 *Larson's Book of Cults*. Wheaton IL: Tyndale.

Laymen's Home Missionary Movement

.....N.d. *The Evolution Theory Examined*. Chester Springs PA: Laymen's Home
Missionary.

Lee, Francis Nigel

.....1969 *Communism Versus Creation*. Nutley NJ: Craig Press.

Lehman, Chester K.

.....1933 *The Inadequacy of Evolution as a World View*. Scottsdale PA: Mennonite
Publishing House.

Levitt, Zola

.....1976 *Creation: A Scientist's Choice*. San Diego: Creation-Life.

Lord, David N.

.....1855 *Geognosy; or the Facts and Principles of Geology Against Theories*. New
York: Franklin Knight.

Lowenstein, J.M.

.....1982 "Twelve Wise Men at the Vatican." *Nature*: 299(5882):395.

Lubenow, Marvin L.

.....1983 *From Fish to Gish*. San Diego: CLP (Creation-Life).

Lucas, Jerry, and Del Washburn

.....1977 *Theomatics: God's Best Kept Secret Revealed*. New York: Stein and Day.

Lunn, Arnold H.

.....1932 *The Flight from Reason*. London.

.....1950 [1930] *The Revolt Against Reason*. London: Eyre & Spottiswoode.

Lunn, Arnold H., and J.B.S. Haldane

.....1935 *Science and the Supernatural: A Correspondence Between Arnold Lunn and J.B.S. Haldane*. New York: Sheed and Ward.

Lutheran Research Forum

.....1973 *Theology and Science*. Lutheran Research Forum.

Maatman, Russell W.

.....1970 *The Bible, Natural Science, and Evolution*. Grand Rapids MI: Reformed Fellowship.

.....1978 *The Unity in Creation*. Sioux City IA: Dordt College Press.

Macbeth, Norman

.....1971 *Darwin Retried: An Appeal to Reason*. Ipswich MA: Gambit.

McCann, Alfred Watterson

.....1922 *God—Or Gorilla: How the Monkey Theory of Evolution Exposes Its Own Methods, Denies Its Own Inferences, Disproves Its Own Case*. New York: Devin-Adair.

McCone, R. Clyde

.....1968 “Evolutionary Time: A Moral Issue.” In *A Symposium on Creation* (H. Morris et al.).

McDowell, Josh, and Don Stewart

.....1981 *Reasons Why Skeptics Ought to Consider Christianity*. San Bernardino CA: Here’s Life Publishers.

.....1984 *The Creation*. San Bernardino CA: Here’s Life Publishers.

McGarry, T.W.

.....1987 “Around the Valley.” *Los Angeles Times*: San Fernando Valley ed., Dec. 30.

McGee, J. Vernon

.....1964 *Evolution and You*. Los Angeles: Church of the Open Door.

.....1980 [1975] *Genesis: Volume I*. Pasadena CA: Thru the Bible Books.

McIver, Tom

.....1986a “Ancient Tales and Space-Age Myths of Creationist Evangelism.” *Skeptical Inquirer*: 10(3):258-276.

.....1986b “Ethnology of Creationist Bible-Science.” Unpub. paper presented at Amer. Anthropology Assoc. meeting, Dec. 4., Philadelphia.

-1986c “Report on Thomas J. Kindell Seminar.” *Creation/Evolution Newsletter*: 6(4):14-15.
-1986d “A Traveling Creation Festival.” *Creation/Evolution Newsletter*: 6(3):12.
-1987a “A Creationist Walk Through the Grand Canyon.” *Creation/Evolution*: XX:1-13.
-1987b “ICR and BSA Metastasize in Colorado.” *Creation/Evolution Newsletter*: 7(6):11.
-1987c “Nebraska Man Strikes Again and Again.” *Creation/Evolution Newsletter*: 7(4):13-14.
-1987d “Reason & Revelation (Apologetics Press).” *Creation/Evolution Newsletter*: 7(1):20-21.
- 1987e “Verna Wright; Francis Hitching.” *Creation/Evolution Newsletter*: 7(5):15-16.
-1988a *Anti-Evolution: An Annotated Bibliography*. Jefferson NC: McFarland.
-1988b “Backward Masking, and Other Backward Thoughts About Music.” *Skeptical Inquirer*: 13(1):50-63.
-1988c “Catholic Anti-Evolutionists and Historical Revisionists.” *Creation/Evolution Newsletter*: 8(3):15-16.
-1988d “Christian Astrology.” *Creation/Evolution Newsletter*: 8(5):18.
-1988e “Christian Reconstructionism, Post-Millennialism, and Creationism.” *Creation/Evolution Newsletter*: 8(1):10-17.
-1988f “Creationist Misquotation of Darrow.” *Creation/Evolution*: XXIII:1-13.
-1988g “Films from Moody Institute of Science.” *Creation/Evolution Newsletter*: 8(3):15.
-1988h “Formless and Void: Gap Theory Creationism.” *Creation/Evolution*: XXIV:1-24.
-1988i “New D. James Kennedy Film.” *Creation/Evolution Newsletter*: 8(6):15-16.

Magne, Charles Lee

.....N.d. [1970s] *The Negro and the World Crisis*. Hollywood CA: New Christian Crusade Church.

Mandock, Randal L.N.

.....1983 *Scale Time Versus Geologic Time in Radioisotope Age Determination*. M.S. thesis: Inst. Creation Research.

Mandock, Richard E.P.

.....1983 *Theoretical Thermal Calculations for Heat Distributions with Spherical Symmetry*. M.S. thesis: Inst. Creation Research.

Marra, William

.....N.d.? *Evolution and the Lordship of God* (audiotape).

.....N.d.? *The Distractions of Evolution* (audiotape).

Marsden, George M.

.....1980 *Fundamentalism and American Culture*. Oxford: Oxford Univ. Press.

.....1983 "Creation Versus Evolution: No Middle Way." *Nature*: 305:571-574.

.....1984 "Understanding Fundamentalist Views of Science." In *Science and Creationism* (A. Montague, ed.).

Martin, Walter

.....1985 *The Kingdom of the Cults*. Minneapolis: Bethany.

Marsh, Frank Lewis

.....1941 *Fundamentals of Biology*. Priv. pub. (Lincoln NE).

.....1944 *Evolution, Creation and Science*. Wash., D.C.: Review and Herald.

.....1950 *Studies in Creationism*. Wash., D.C.: Review and Herald.

.....1957 *Life Man and Time*. Mountain View CA: Pacific Press.

.....1963 [1947] *Evolution or Special Creation?* Wash., D.C.: Review and Herald.

.....1976 *Variation and Fixity in Nature*. Mountain View CA: Pacific Press.

Marston, Sir Charles

.....1938 [1934] *The Bible Is True*. London: Religious Book Club.

Martin, James Lee

.....1938 *Monkey Mileage from Amoeba to Man*. Grand Rapids MI: Wm. B. Eerdmans.

Martin, T[homas] T[heodore]

.....1923 *Hell and the High Schools: Christ or Evolution, Which?* Kansas City: Western Baptist Publishing.

Mauro, Philip

.....N.d. [1910?] "Life in the Word." In *The Fundamentals: Vol. V*. Chicago: Testimony Publishing.

.....1922 *Evolution at the Bar*. New York: George H. Doran.

Mayr, Ernst

.....1982 *The Growth of Biological Thought*. Cambridge MA: Belknap (Harvard).

Mead, Frank S., and Samuel S. Hill

.....1985 *Handbook of Denominations*. 8th ed. Nashville: Abingdon Press.

Meldau, Fred John

.....1974 [1959] *Why We Believe in Creation Not in Evolution*. Denver: Christian Victory Publishing.

Meyer, Louis, ed.

.....N.d. [1911?-1913?] *The Fundamentals: Vols. VI-VIII*. Chicago: Testimony Publishing.

Miller, Hugh

.....1841 *The Old Red Sandstone; or, New Walks in an Old Field*. Edinburgh.

.....1857 *The Testimony of the Rocks; or, Geology in Its Bearings on the Two Theologies, Natural and Revealed*. Boston: Gould and Lincoln.

.....1882 [1847] *The Footprints of the Creator; or, The Asterolepis of Stromness*. New York: Robert Carter.

Millhauser, Milton

.....1954 "The Scriptural Geologists." *Osiris*: 11:65-86.

.....1959 *Just Before Darwin: Robert Chambers and Vestiges*. Middletown CT: Wesleyan Univ. Press.

Mivart, St. George

.....1871 *On the Genesis of Species*. New York: D. Appleton.

Mixter, Russell

.....1953 [1949] *Creation and Evolution*. West Lafayette IN: American Scientific Affiliation.

.....1955 *The Story of Creation*. Grand Rapids MI: Zondervan.

Mixter, Russell, ed.

.....1959 *Evolution and Christian Thought Today*. Grand Rapids MI: Wm. B. Eerdmans.

Mohs, Mayo

.....1987 "Where Has All the Fragrance Gone?" *Discover*: June.

Monsma, Edwin Y.

.....1959 [1954] *If Not Evolution, What Then?* Priv. pub.? (Grand Rapids MI).

Monsma, John C., ed.

.....1966 *Behind the Dim Unknown*. New York: G.P. Putnam's.

Montague, Ashley, ed.

.....1984 *Science and Creationism*. Oxford: Oxford Univ. Press.

Montgomery, John Warwick

.....1974 *The Quest for Noah's Ark*. Minneapolis: Bethany Fellowship.

.....1986 "Is the Bible Only Reliable Spiritually?" *Moody Monthly*: March:121-122.

Moody Institute of Science

.....1985 *Journey of Life* (film). Whittier CA

.....1988 *Distinctly Human* (film). Whittier CA

Moore, James R., ed.

.....1973 *Christianity for the Tough-Minded*. Minneapolis: Bethany.

Moore, John A.

.....1974 "Creationism in California." *Daedalus (J. Amer. Acad. Arts & Sciences)* [rev. ed pub. as *Science and Its Public*].

Moore, John N.

.....1983 *How to Teach Origins (Without ACLU Interference)*. Milford MI: Mott Media.

Moore, John N., and Harold Slusher, eds.

.....1974 [1971] *Origins: A Search for Order in Complexity*. Grand Rapids MI: Zondervan.

Morris, Henry M.

1944 *God's Way of Salvation*. Houston: Bowman Co.

-1946 *That You Might Believe*. Chicago: Good Books.
-1963 *Biblical Catastrophism and Geology*. Philadelphia: Presbyterian and Reformed.
-1966 *Studies in the Bible and Science: 21.1 Christ and Creation*. Philadelphia: Presbyterian and Reformed.
-1968 [1951] *The Bible and Modern Science*. Chicago: Moody Press.
-1968 “Science versus Scientism.” In *A Symposium on Creation* (Morris et al.).
-1971a *The Bible Has the Answer*. Nutley NJ: Craig Press. (Also 1976 and 1987 rev. and expanded eds. By Morris and Martin Clark.).
-1971b *Science, Scripture and Salvation*. Denver: Baptist Publications.
-1976 *The Genesis Record: A Scientific and Devotional Commentary on the Book of Beginnings*. Grand Rapids MI: Baker Book House / San Diego: Master Books (co-pub.).
-1977 *Education for the Real World*. San Diego: Creation-Life.
-1978 [1972] *The Remarkable Birth of Planet Earth*. Minneapolis: Bethany Fellowship.
-1980 “The Tenets of Creationism.” *ICR Impact* series No. 85.
-1981 [1967] *Evolution and the Modern Christian*. Phillipsburg NJ: Presbyterian and Reformed.
-1983a *The Revelation Record: A Scientific and Devotional Commentary on the Prophetic Book of the End Times*. Wheaton IL: Tyndale / San Diego: Creation-Life (co-pub.).
-1983b *Science, Scripture and the Young Earth: An Answer to Current Arguments Against the Biblical Doctrine of Recent Creation*. San Diego: Creation-Life.
-1984a *The Biblical Basis for Modern Science*. Grand Rapids MI: Baker Book House.
-1984b *History of Modern Creationism*. San Diego: Master Book (CLP).
-1986 *Science and the Bible*. Chicago: Moody Press.
-1987 “Is Creationism Scientific?” *ICR Acts & Facts*: 16(12):1,4.

.....1988a *The God Who Is Real*. Grand Rapids MI: Baker Book House.

.....1988b *The Remarkable Record of Job*. Grand Rapids MI: Baker Book House.

Morris, Henry M., et al.

.....1968 *A Symposium on Creation*. Grand Rapids MI: Baker Book House.

Morris, Henry M., and Gary E. Parker

.....1982 *What Is Creation Science?* San Diego: Master Book.

Morris, Henry M., ed.

.....1974 *Scientific Creationism*. San Diego: Master Book.

Morris, Henry M., and Duane Gish, eds.

.....1976 *The Battle for Creation*. San Diego: Creation-Life.

Morris, Henry M., Duane Gish, and George Hillestad, eds.

.....1974 *Creation: Acts/Facts/Impacts*. San Diego: Creation-Life.

Morris, Henry M., and Donald Rohrer, eds.

.....1981 *Decade of Creation*. San Diego: Creation-Life.

.....1982 *Creation: The Cutting Edge*. San Diego: Creation-Life.

Morris, John D.

.....1973 *Adventure on Ararat*. San Diego: Inst. for Creation Research.

.....1989 "Is There Evidence Against Evolution?" *ICR Acts & Facts*: 18(6):d.

Morrison, A. Cressy

.....1944 *Man Does Not Stand Alone*. Old Tappan NJ: Fleming H. Revell.

Morton, Glenn R.

.....1986a "Geologic Challenges to a Young Earth." In *Proc. First Int'l Conf. on Creationism*.

.....1986b *The Geology of the Flood*. Dallas: DMD.

Morton, Jean Sloat

.....1978 *Science in the Bible*. Chicago: Moody Press.

Munday, Effie

.....1986 "The British Evolution Protest Movement: A Brief History." *Ex Nihilo*: 8(2):41.

Munk, Eli

.....1974 *The Seven Days of Creation*. Jerusalem: Feldheim.

Myers, Ellen

.....1980 "Europe and Creation Science in 1980." *Creation Social Science and Humanities Quarterly*: III(1):15-22.

National Book Company

.....1925 *The World's Most Famous Court Trial: Tennessee Evolution Case: A Complete Stenographic Report*. Cincinnati: National Book.

Nature

.....1973 "Backing the Bible." 241:360.

Nee, Watchman

.....1981 *The Mystery of Creation*. New York: Christian Fellowship Publishers.

Needham, Joseph

.....1982 "Letter." *Teilhard Review and J. of Creative Evolution*.

Nelkin, Dorothy

.....1982 *The Creation Controversy: Science or Scripture in the Schools*. New York: W.W. Norton.

Nelson, Byron C.

.....1948 *Before Abraham: Prehistoric Man in Biblical Light*. Minneapolis: Augsburg.

.....1952 [1927] *After Its Kind*. Minneapolis: Bethany Fellowship.

.....1968 [1931] *The Deluge Story in Stone: A History of the Flood Theory of Geology*. Minneapolis: Bethany.

Nelson, Ethel R., and Richard E. Broadberry

.....1986 *Mysteries Confucius Couldn't Solve: Analysis of Ancient Facts Shared with Hebrew Scripture*. South Lancaster MA: Read Books.

Neufeld, Berney

.....1975 "Dinosaur Tracks and Giant Men." *Origins (GRI)*: 2(2):64-76.

Newman, Robert C., and Herman J. Eckelmann

.....1977 *Genesis One and the Origin of the Earth*. Grand Rapids MI: Baker Book House.

Noorbergen, Rene

.....1974 *The Ark File*. Mountain View CA: Pacific Press.

Norris, George L.

.....1973 *Creation—Cataclysm—Consummation*. Ft. Worth TX: Marno.

North, Gary

.....1974 “Basic Implications of the Six-Day Creation.” *J. Christian Reconstruction*: 1(1):1-27.

.....1981 *Unconditional Surrender: God’s Program for Total Victory*. Ft. Worth TX: Dominion Press.

.....1986 [1976] *Unholy Spirits: Occultism and New Age Humanism*. Ft. Worth TX: Dominion Press. (1976 ed. titled *None Dare Call It Witchcraft*.)

.....1988 *Is the World Running Down?: Crisis in the Christian Worldview*. Tyler TX: Inst. for Christian Economics.

North, Gary, ed.

.....1974 *Symposium on Creation* [*J. Christian Reconstruction*: 1(1)]. Vallecito CA

Northrup, Bernard

.....N.d. [1975?] *Light on the Ice Age*. Bible-Science Assoc.

Northwestern Lutheran

.....1967 *Is Evolution the Answer?* Milwaukee: Northwestern.

Numbers, Ronald L.

.....1982 “Creationism in 20th-Century America.” *Science*: 218:538-544.

.....1988 “George Frederick Wright: From Christian Darwinist to Fundamentalist.” *Isis*: 79:624-645.

Nutting, David Irwin

.....1984 *Origin of Bedded Salt Deposits: A Critique of Evaporative Models*. M.S. thesis: Inst. for Creation Research.

Nutting, David Irwin, and Mary Jo Nutting

.....1985 “Opportunities to Reach Public Education.” *Think & Believe*: 3(1):4.

.....1986 “Spread the Word.” *Think & Believe*: 3(1):4.

Nutting, Mary Jo

.....1983 *A Rationale for the Christian College Biology Curriculum: A Case Study at Christian Heritage College*. M.S. thesis: Inst. for Creation Research.

“An Occupant of the Pew”

.....N.d. [ca. 1912] “Evolutionism in the Pulpit.” In *The Fundamentals: Vol. VIII*.

O’Connell’, Patrick J.

.....1969 [1959] *Science of Today and the Problems of Genesis: The Six Days of Creation, the Origin of Man, the Deluge and the Antiquity of Man*. Hawthorne CA: Christian Book Club of America.

.....1973 *Original Sin in the Light of Present-Day Science*. Houston: Lumen Christi Press.

Orr, James

.....N.d. [ca. 1912] “The Early Narratives of Genesis.” In *The Fundamentals: Vol. VI*.

N.d. [ca. 1912] “Science and Christian Faith.” In *The Fundamentals: Vol. IV*.

Osborne, Chris Dexter

.....1985 *A Reevaluation of the English Peppered Moth’s Use as an Example of Evolution in Progress*. M.S. thesis: Inst. for Creation Research.

Ostermann, Eduard

.....1978 *Das Glaubenbekenntnis der Evolution*. Neuhausen-Stuttgart, Germany: Telos.

O’Toole, George Barry

.....1925 *The Case Against Evolution*. New York: Macmillan.

Otten, Herman J.

.....N.d. [1965] *Baal or God*. New Haven MO: Leader.

.....1989 “Christians Defend the Truth—Reject All Hoaxes.” *Christian News*: 27(8):6-23.

Ouweneel, Willem J.

.....1974a *Notes on Genesis One*. The Netherlands.

.....1974b *What Is the Truth: Creation or Evolution?* Believers Bookshelf.

.....1975 *Operation Superman*. The Netherlands.

.....1976 *The Ark in Agitation*. Amsterdam: Guigten & Schipperheijn.

.....1977 “Creation in the Netherlands.” ICR *Impact* series No. 56.

.....1985 “Evolution and the Humanities.” Lecture at Bible-Science Assoc. Int’l Conf. on Creationism (Aug. 14-16, Cleveland).

Oviatt, Patricia C.

.....1980 [1971] *Genesis in the Science Lab*. Denver: Accent-B/P.

Parker, Gary E.

.....1977 *From Evolution to Creation: A Personal Testimony*. San Diego: Creation-Life.

.....1980 *Creation: The Facts of Life*. San Diego: CLP.

Patten, Donald W.

.....1966 *The Biblical Flood and the Ice Epoch*. Seattle: Pacific Meridian.

Patten, Donald W., ed.

.....1972 *A Symposium on Creation IV*. Grand Rapids MI: Baker Book House.

Patterson, Alexander

.....1903 *The Other Side of Evolution: Its Effects and Fallacy*. Chicago: Moody Bible Inst. Colportage Assoc.

Pavlu, Ricki D.

.....1986 *Evolution: When Fact Became Fiction*. Hazelwood MO: Word Aflame Press.

Pearce, E.K. Victor

.....1969 *Who Was Adam?*. Exeter, U.K.: Paternoster.

Pearcey, Nancy

.....N.d. [1980s?] *Teaching Creationism*. Bible-Science Assoc.

Pember, G.H.

.....1975 [1876] *Earth's Earliest Ages*. Grand Rapids MI: Kregel.

Penn, Granville

.....1844 [1822] *A Comparative Estimate of the Mineral and Mosaical Geologies*. London: James Duncan.

Pierson, Arthur T.

.....1886 *Many Infallible Proofs: The Evidences of Christianity; or, The Written and Living Word of God*. New York: Fleming H. Revell.

Pinkston, William S.

.....1980 *Biology for Christian Schools*. Greenville SC: Bob Jones Univ. Press.

Price, George McCready

.....1902 *Outline of Modern Science and Modern Christianity*. Los Angeles: Modern Heretic.

.....1906 *Illogical Geology: The Weakest Point in the Evolution Theory*. Los Angeles: Modern Heretic.

.....1911 *God's Two Books: Or Plain Facts About Evolution Geology, and the Bible*. Wash., D.C.: Review and Herald.

.....1913 *The Fundamentals of Geology, and Their Bearing on the Doctrine of a Literal Creation*. Mountain View CA: Pacific Press.

.....1917 *Q.E.D.: Or New Light on the Doctrine of Creation*. New York: Fleming H. Revell.

.....1920 [1916] *Back to the Bible*. Wash., D.C.: Review and Herald.

.....1921 *Poisoning Democracy*. New York: Fleming H. Revell.

.....1923 *The New Geology*. Mountain View CA: Pacific Press.

.....1926 *Evolutionary Geology and the New Catastrophism*. Mountain View CA: Pacific Press.

.....1931 *The Geological-Ages Hoax: A Plea for Logic in Theoretical Geology*. Chicago: Fleming H. Revell.

.....1942 *How Did the World Begin?* New York: Fleming H. Revell.

.....1949 *Feet of Clay: The Unscientific Nonsense of Historical Geology*. Malverne NY: Christian Evidence League.

.....1956 *Problems and Methods in Geology*. Malverne NY: Christian Evidence League.

.....1967 *The Time of the End*. Nashville: Southern Publishing.

.....1971 *Report on Evolution*. Malverne NY: Christian Evidence League.

Price, Robert M.

.....1982 "Old-Time Religion and the New Physics." *Creation-Evolution*: IX:23-31.

Proc. of the First International Conference on Creationism.

.....1986 2 vols. Pittsburgh: Creation Science Fellowship.

Pun, Pattle P.T.

.....1982 *Evolution: Nature and Scripture in Conflict?* Grand Rapids MI: Zondervan.

Rahmeh, Farid Abu

.....N.d. [1981?] *Creation or Evolution: Does Science Have the Answer?* Priv. pub. (U.K.?).

Ramm, Bernard

.....1954 *The Christian View of Science and Scripture*. Grand Rapids MI: William B. Eerdmans.

Rasmussen, Stanley A.

.....1984 *A Determination of the Time of the Flood from the Geologic Ages of River Deltas*. M.S. thesis: Inst. For Creation Research.

Read, John G.

.....1979 *Fossils, Strata and Evolution: A Test of the Credibility of the Evolution Theory*. Culver City CA: Scientific-Technical Presentations.

Ream, Robert J.

.....1972 *A Christian Approach to Science and Science Teaching*. Nutley NJ: Presbyterian and Reformed.

Reed, Lucas A.

1919 *Astronomy and the Bible: The Empire of Creation Seen in the Dual Light of Science and the Word*. Mountain View CA: Pacific Press.

Rehwinkel, Alfred M.

.....1951 *The Flood: In the Light of the Bible, Geology, and Archeology*. St. Louis MO: Concordia.

.....1967 [1966] *The Age of the Earth and Chronology of the Bible*. Adelaide, Australia: Lutheran Publishing.

.....1974 *The Wonders of Creation: An Exploration of the Origins and Splendors of the Universe*. Minneapolis: Bethany.

Renaissance Institute

.....N.d. [1984] "\$38,000,000,000.00 Suit Against the National Academy of Sciences" (flyer). Tucson AZ.

Renaissance Institute v. National Academy of Sciences

.....1984 U.S. District Court—Ariz.

Rendle-Short, Arthur

.....1942 *Modern Discovery and the Bible*. London: Inter-Varsity Fellowship of Evangelical Unions.

Rendle-Short, John

.....1984 [1981] *Man—Ape or Image: The Christian's Dilemma*. San Diego: Master Book.

Reno, Cora A.

.....1953 *Evolution: Fact or Theory?* Chicago: Moody Press.

.....1970 *Evolution on Trial*. Chicago: Moody Press.

.....1972 *Evolution and the Bible*. Chicago: Moody Press.

Rice, John R.

.....1963 *Evolution or the Bible: Which?* Murfreesboro, Tenn.: Sword of the Lord.

Rice, Stanley

.....1988 “Scientific Creationism: Adding Imagination to Scripture”
Creation/Evolution: XXIV:25-36.

Ridenour, Fritz, ed.

.....1967 *Who Says God Created?* Glendale CA: G/L Regal.

Riegle, David A.

.....1971 [1962] *Creation or Evolution?* Grand Rapids MI: Zondervan.

Riley, William B.

.....1917 *The Menace of Modernism*. New York: Christian Alliance.

.....1926 *Inspiration or Evolution*. Cleveland: Union Gospel Press.

Riley, William B., and Harry Rimmer

.....1929 *A Debate: Resolved, That the Creation Days in Genesis Were Aeons, Not Solar Days*. Minneapolis: [Northwestern Bible Coll.?].

.....1974 *The Creation Days of Genesis: A Profound Debate Between Dr. W.B. Riley and Dr. Harry B. Rimmer*. Colton CA: World Prophetic Ministries.

Rimmer, Harry

.....1936 *The Harmony of Science and Scripture*. Grand Rapids MI: William B. Eerdmans.

.....1941 [1937] *Modern Science and the Genesis Record*. Berne IN: Berne Witness Co.

.....1947 *Lot's Wife and the Science of Physics*. Grand Rapids MI: Wm. B. Eerdmans.

.....1951 [1935] *The Theory of Evolution and the Facts of Science*. Grand Rapids MI: Wm. B. Eerdmans.

.....1956 [1940] *That Lawsuit Against the Bible*. Grand Rapids MI: Wm. B. Eerdmans.

Ritland, Richard M.

.....1970 [1966] *A Search for Meaning in Nature: A New Look at Creation and Evolution*. Mountain View CA: Pacific Press.

Robbins, John W.

.....1987 "The Hoax of Scientific Creationism." *Trinity Review*: #56:1-6.

Robertson, Pat

.....1984 *Answers to 200 of Life's Most Probing Questions*. Nashville: Thomas Nelson.

Robinson, Jim, and Darlene [Rowena] Robinson

.....1981 *Children's Travel Guide & Activities Book*. San Diego: Creation-Life.

Rosin, Jacob

.....1976 *The Predestined World*. Hollywood: Vantage Press.

Rouster, Lorella

.....1980 "Father and Son: The Tragedy of Edmund Gosse." *Creation Social Science and Humanities Quarterly*: 11(3).

Ruffini, Ernesto

.....1959 *The Theory of Evolution Judged by Reason and by Faith*. New York.

Rusch, Wilbert H.

.....1984 *The Argument: Creationism vs. Evolutionism*. Norcross GA: Creation Research Society Books. (I quote from a 1983 priv. pub. ed.)

Rushdoony, Rousas J.

.....1963 *The Messianic Character of American Education*. Phillipsburg NJ: Presbyterian and Reformed.

.....1967 *The Mythology of Science*. Nutley NJ: Craig Press.

.....1971 "The Premises of Evolutionary Thought." In *Scientific Studies in Special Creation* (Lammerts, ed.).

.....1973 *The Institutes of Biblical Law* (3 vols.). Nutley NJ: Craig Press.

.....1978 [1964] *This Independent Republic: Studies in the Nature and Meaning of American History*. Fairfax VA: Thoburn Press.

.....1980 "The Necessity for Creationism." *Creation Social Science and Humanities Quarterly*: II1(1):5-14.

Russell, Bertrand

.....1935 *Religion and Science*. London: Oxford Univ. Press.

Russell, Charles Taze

.....1941 [1916] *The New Creation*. Brooklyn NY: Dawn Publishers. *Studies in the Scriptures* series.

Rutherford, Joseph Franklin

.....1927 *Creation: The Scriptural Proof of the Creation of Things Seen and Unseen*. Brooklyn NY: Int'l Bible Students Assoc.—Watchtower Bible and Tract Soc.

Ryrie, Charles C.

.....1967 *We Believe in Creation*. Dallas: Dallas Theological Seminary.

.....1974 *You Mean the Bible Teaches That?* Chicago: Moody Press.

Saidookhail, Mohammed Ayub Khan

.....1971? *The Missing Link: An Antithesis*. Sialkot, Pakistan: Saidookhail Traders.

Salisbury, Frank B.

.....1969 “Natural Selection and the Complexity of the Gene.” *Nature*: 224:342-343.

.....1971 “Doubts About the Modern Synthetic Theory of Evolution.” *American Biology Teacher*: 335-338.

.....1974 *The Utah UFO Display*. Greenwich CT: Devin-Adair.

.....1976 *The Creation*. Salt Lake City: Deseret Book.

Sandeen, Ernest R.

.....1970 *The Roots of Fundamentalism: British and American Millenarianism, 1800-1930*. Grand Rapids MI: Baker Book House.

Sanden, Oscar E.

.....1951 *Does Science Support the Scriptures?* Grand Rapids MI: Zondervan.

.....1961 *Twelve Bridges No Evolutionist Has Ever Crossed*. Lincoln NE: Back to the Bible.

Schaars, Herman W.

.....1970 *Nature and Nature's God*. Wisc.: Dept. Christian Educ., Lutheran Church—Missouri Synod.

Schadewald, Robert

.....1981-82 “Scientific Creationism, Geocentricity and the Flat Earth” *Skeptical Inquirer*: VI(2):41-48.

Schaeffer, Francis A.

.....1981 *A Christian Manifesto*. Westchester IL: Crossway (Good News).

.....1983 [1976] *How Should We Then Live? The Rise and Decline of Western Thought and Culture*. Westchester IL: Crossway (Good News).

Scherer, Siegfried

.....1983 *Wort und Wissen: Fachberichte I*. Neuhausen, Germany: Hänssler.

Schirmacher, Thomas

.....1985 “The German Creationist Movement.” *ICR Impact* series No. 145.

Schnabel, A.O.

.....1974 *Has God Spoken?* Priv. pub. (Tampa FL).

Schonberg, David J.

.....1974 *On Purpose or by Chance? (Or Does It Matter?)* Priv. pub. (Holmes City MN).

Schwarze, Carl Theodore

.....1942 *The Harmony of Science and the Bible*. Grand Rapids MI: Zondervan.

.....1957a *Evolution*. Toronto: Int’l Christian Crusade.

.....1957b *The Marvel of Earth’s Canopies*. Westchester IL: Good News Publishers.

Scofield, C.I.

.....1917 [1909] *Scofield Reference Bible*. Oxford: Oxford Univ. Press.

.....1961 [1896] *Rightly Dividing the Word of Truth*. Findlay OH: Dunham Publishing.

Scott, John O.

.....N.d. *The Four Most Glorious Events in Human History: Or the Refutation of Evolution*. Priv. pub.

Sears, Jack Wood

.....1969 *Conflict and Harmony in Science and the Bible*. Grand Rapids MI: Baker Book House.

Segraves, Nell J., and Jean E. Sumrall

.....N.d. *A Legal Premise for Moral and Spiritual Guidelines for California Public Schools*. San Diego: Creation-Science Research Center.

Setterfield, Barry, and Trevor G. Norman.

.....1987 *The Atomic Constants, Light, and Time*. Menlo Park CA: Stanford Research Institute International.

Shiple, Maynard

.....1927 *The War on Modern Science: A Short History of the Fundamentalist Attacks on Evolution and Modernism*. New York: Alfred A. Knopf.

Shiple, Maynard, Francis Nichol, and Alonzo Baker

.....1925 *The San Francisco Debates on Evolution*. Mountain View CA: Pacific Press.

Showalter, Lester E.

.....1970 *Investigating God's Orderly World*. Crockett KY: Rod and Staff.

Shute, Evan

.....1962 *Flaws in the Theory of Evolution*. Nutley NJ: Craig Press.

Simonds, Robert L.

.....1983 *Communicating a Christian World View in the Classroom*. Costa Mesa CA: Nat'l Assoc. of Christian Educators.

Skeem, Kenneth A.

.....1981 *In the Beginning—A Book About Reason, Rocks and Religion*. Oasis UT: Behemoth Publishing.

Skjaerlund, David M.

.....1987 *Creation-Evolution: Understanding the Issues at Hand*. East Lansing MI: Soc. for Creation Science.

Skorupski, John

.....1983 [1976] *Symbol and Theory: A Philosophical Study of Theories of Religion in Social Anthropology*. Cambridge: Cambridge Univ. Press.

Slusher, Harold S.

.....1980 *Age of the Cosmos*. El Cajon CA: Inst. For Creation Research. ICR Technical Monograph No. 9.

.....1980 [1978] *The Origin of the Universe: An Examination of the Big Bang and Steady State Cosmogonies*. El Cajon CA: Inst. for Creation Research. ICR Technical Monograph No. 8.

.....1981 [1973] *Critique of Radiometric Dating*. El Cajon CA: Inst. for Creation Research. ICR Technical Monograph No. 2.

Slusher, Harold S., and Thomas Gamwell

.....1978 *Age of the Earth*. El Cajon CA: Inst. For Creation Research. ICR Technical Monograph No. 7.

Slusher, Harold S., and Francisco Ramirez

.....1984 *The Motion of Mercury's Perihelion: A Reevaluation of the Problem and Its Implications for Cosmology and Cosmogony*. El Cajon CA: Inst. for Creation Research. ICR Technical Monograph No. 11.

Slusher, Harold S., and Stephen J. Robertson [Duursma]

.....1982 [1978] *The Age of the Solar System: A Study of the Poyting-Robertson Effect and Extinction of Interplanetary Dust*. El Cajon CA: Inst. For Creation Research. ICR Technical Monograph No. 6.

Smith, John Pye

.....1854 [1839] *On the Relation Between the Holy Scriptures and Some Parts of Geological Science*. London: Henry G. Bohn.

Smith, Judith P.

.....1983 "Tucsonan Says Computer Proves the Koran." *Arizona Daily Star* (Tucson): Feb. 5, p. 1C.

Smith, Wilbur M.

.....1946 [1945] *Therefore, Stand: A Plea for a Vigorous Apologetic in the Present Crisis of Evangelical Christianity*. Boston: W.A. Wilde.

Snelling, Andrew, John Mackay, C. Wieland, and Ken Ham

.....1984 *The Case Against Evolution: The Case for Creation*. "Casebook I": suppl. to *Ex Nihilo*. Sunnybank, Australia: Creation Science Foundation.

Society for Creation Science

.....1988 "Creation Course Changing Lives." *SCS Newsletter*: March-April:1.

Spetner, Lee M.

[Date unknown] "Information Theory Considerations of Organic Evolution." B'Or Ha'Torah.

Stent, Gunther S.

.....1984 "Scientific Creationism: Nemesis of Sociobiology." In *Science and Creationism* (A. Montague, ed.).

Stokes, William Lee

.....1984 *The Genesis Answer: A Scientist's Testament for Divine Creation*. Englewood Cliffs NJ: Prentice-Hall.

Stoner, Peter W.

.....1969 [1958] *Science Speaks: Scientific Proof of the Accuracy of the Bible*. Chicago: Moody Press. (1976 rev. ed. lists Robert C. Newman as co-author.)

Straton, John Roach, and Charles Francis Potter

.....1924 *Evolution versus Creation*. New York: George H. Doran.

.....1925 *The Famous New York Fundamentalist-Modernist Debates: The Orthodox Side*. New York: George H. Doran.

Sunderland, Luther D.

.....1982 *Prominent British Scientists Abandon Evolution*. Richfield MN: Onesimus.

.....1984 *Darwin's Enigma: Fossils and Other Problems*. San Diego: Master Book.

Sunderland, Luther D., and Gary Parker

.....1982 *Evolution?: Prominent British Scientist Reconsiders*. ICR Impact series No. 108.

Swaggart, Jimmy

.....1984 *The Pre-Adamic Creation and Evolution* (3 audiotapes). Baton Rouge LA: Jimmy Swaggart Ministries.

.....1985 *Questions and Answers: Bible-Based Answers to Your Questions About Life*. Baton Rouge LA: Jimmy Swaggart Ministries.

.....1985 *Rape of a Nation*. Baton Rouge LA: Jimmy Swaggart Ministries.

Swaggart, Jimmy, ed.

.....1985 *Issues of the Eighties*. Baton Rouge LA: Jimmy Swaggart Ministries. (Special issue of *The Evangelist*.)

Talbot, Louis T.

.....1946 [1936] *God's Plan of the Ages*. Grand Rapids MI: Wm. B. Eerdmans.

[Tayler, William Elfe]

.....1857 *Voices from the Rocks; or Proofs of the Existence of Man During the Paleozoic or Most Ancient Period of the Earth*. London: Judd & Glass. (Published anonymously.)

Taylor, Charles V.

.....1984 *The Oldest Science Book in the World*. Slacks Creek, Queensland, Australia: Assembly Press.

Taylor, Hebden

.....1967 *Evolution and the Reformation of Biology*. Nutley NJ: Craig Press.

Taylor, Kenneth N.

.....1969 *Creation and the High School Student*. Wheaton IL: Tyndale House.

Taylor, Paul S.

.....1987 *The Great Dinosaur Mystery and the Bible*. El Cajon CA: Master Book.

Thaxton, Charles B., Walter L. Bradley, and Roger Olsen

.....1984 *The Mystery of Life's Origin: Reassessing Current Theories*. New York: Philosophical Library.

Thoburn, Robert

.....1984 *The Christian and Politics*. Tyler TX: Thoburn Press.

Thomas, Keith

.....1971 *Religion and the Decline of Magic*. New York: Charles Scribner's Sons.

Thompson, Bert

.....1981a *Can America Survive the Fruits of Atheistic Evolution?* Ft. Worth TX: Pro-Family Forum. (Orig. pub. by Apologetics Press.)

.....1981b *The History of Evolutionary Thought*. Ft. Worth TX: Star Bible & Tract.

.....1985 *The Scientific Case for Creation*. Montgomery AL: Apologetics Press.

.....1986a *The Global Universal, Worldwide Flood of Noah*. Montgomery AL: Apologetics Press.

.....1986b *Is Genesis Myth?: The Shocking Story of the Teaching of Evolution at Abilene Christian University*. Montgomery AL: Apologetics Press.

.....N.d. [1970s?] *The Doctrine of Special Creation*. Montgomery AL: Apologetics Press.

Thorne, Will

.....1988 "Candidate's Past in Video Store Alienates a Supporter." *Santa Monica Outlook Mail* [date unknown].

Thurman, L. Duane

.....1978 *How to Think About Evolution & Other Bible-Science Controversies*. Downers Grove IL: InterVarsity Press:

Tiner, John Hudson

.....1974 *When Science Fails*. Grand Rapids MI: Baker Book House.

Tinkle, William J.

.....1970 *Heredity: A Study of Science and the Bible*. Grand Rapids MI: Zondervan.

Toulmin, Stephen, and June Goodfield

.....1965 *The Discovery of Time*. Chicago: Univ. Chicago Press.

Toumey, Christopher P.

.....1987 *The Social Context of Scientific Creationism*. Ph.D. diss.: Univ. North Carolina.

Townley, Jeffery Kent

.....1985 *A Pilot Study on the Validity of Using an Inquiry Approach in a Video Format for Origins: Two Model: Evolution-Creation in Christian Schools*. M.S. thesis: Inst. for Creation Research.

Townsend, Luther T.

.....1922 [1905] *Collapse of Evolution*. Reading PA: Frank J. Boyer.

Trop, Moshe

.....1974 "Was Evolution Really Possible?" *Creation Research Society Quarterly*: 11(4):183.

.....1982 *Creation: Origin of Life*. Israel. (In Hebrew.)

.....1983 "Is the Archaeopteryx a Fake?" *Creation Research Society Quarterly*: 20(2):121-122.

Turner, C.E.A.

.....1982 *A Jubilee of Witness for Creation Against Evolution: CSM/EPM 1932-1982*. U.K.: Creation Science Movement.

Unger, Merrill F.

.....1957 *Unger's Bible Dictionary*. Chicago: Moody Press.

.....1966 *Unger's Bible Handbook*. Chicago: Moody Press.

Utt, Richard H., ed.

.....1971 *Creation: Nature's Designs and Designer*. Mountain View CA: Pacific Press.

van Baalen, Jan Karel

.....1938 *The Chaos of Cults*. Grand Rapids MI: Wm. B. Eerdmans.

Vail, Isaac Newton

.....1912 *The Earth's Annular System; or, The Waters Above the Firmament: The World Record Scientifically Explained*. Pasadena CA: Annular World Co.

.....1988 [1874] *Waters Above the Firmament*. Calif.: Stonehenge Viewpoint. (Reprint pamphlet, plus other works by Vail, ed.)

Vandeman, George E.

.....1978 *Tying Down the Sun*. Mountain View CA: Pacific Press.

.....1984 *The Telltale Connection*. Boise ID: Pacific Press.

Van Dolson, Leo R., ed.

.....1979 *Our Real Roots: Scientific Support for Creationism*. Wash., D.C.: Review and Herald.

Van Haitsma, John

.....1941 *The Supplanter Undeceived*. Priv. Rapids MI).

Van Til, Cornelius

.....1979 [1955] *The Defense of the Faith*. Presbyterian and Reformed.

Van Till, Howard J.

.....1986 *The Fourth Day: What the Bible and the Heavens Are Telling Us About Creation*. Grand Rapids MI: Wm. B. Eerdmans.

Varghese, Roy A., ed.

.....1984 *The Intellectuals Speak Out About God*. Chicago: Regnery Gateway.

Verbrugge, Magnus

.....1981 *Materialism, Animism, and Evolution*. ICR Impact series No. 94.

.....1984 *Alive: An Enquiry into the Origin and Meaning of Life*. Vallecito CA: Ross House Books.

.....1985 "The Legacy of Duyvene De Wit for Creationist Biology." *Creation Research Society Quarterly*: 21(2,3,4).

von Braun, Wernher

.....N.d. [1972] *The Case for Creation: A Letter from Wernher von Braun*. Pub. not given.

Waggoner, E.J.

.....1894 *The Gospel in Creation*. Battle Creek MI: Review and Herald.

Wagner, Dennis

.....N.d. [1985] "Students for Origins Research" (audiotape). 5/18/85 lecture to San Fernando Valley BSA.

Waisgerber, William

.....1987 "The Mechanisms for Mountain Building from a Creationist Perspective are Not Yet Understood." *Creation Research Society Quarterly*: 24(3):129136.

Waisgerber, William, George F. Howe, and Emmett L. Williams
.....1987 "Mississippian and Cambrian Strata Interbedding: 200 Million Years Hiatus in Question." *Creation Research Society Quarterly*: 23(4):160-167.

Wallis, Roy, ed.
.....1979 *On the Margins of Science: The Social Construction of Rejected Knowledge*. Keele, Staffordshire, U.K.: Univ. Keele.

Walton, Rue
.....1984 *Biblical Principles Concerning Issues of Importance for Godly Christians*. Plymouth MA: Plymouth Rock Foundation.

Ward, Rita Rhodes
.....1949 *The Bible Versus Evolution for Young People*. Priv. pub. (El Paso TX).

.....1967 [1965] *In the Beginning: A Study of Creation versus Evolution for Young People*. Grand Rapids MI: Baker Book House.

Wardell, Don
.....1984 *God Created*. Priv. pub. (Winona Lake IN).

Warrington, George
.....1870 *The Week of Creation, or The Cosmogony of Genesis, Considered in Its Relation to Modern Science*. London: Macmillan.

Watchtower Bible & Tract Society
.....1967 *Did Man Get Here by Evolution or by Creation?* Brooklyn NY: Watchtower Bible and Tract Soc.

.....1985 *Life—How Did It Get Here? By Evolution or by Creation?* Brooklyn NY: Watchtower Bible and Tract.

[Webb, Samuel]
.....1854 *The Creation and the Deluge, According to a New Theory; Confirming the Bible Account*. Priv. pub. (Philadelphia). Pub. anonymously.

Wells, H.G.
.....1920 *The Outline of History: Being a Plain History of Life and Mankind*. New York: Macmillan.

Wells, H.G., with Julian Huxley and G.P Wells
.....1929 *The Science of Life*. New York: Literary Guild.

West, Bob
.....1974 *Evolution Vs Science and the Bible*. Orlando FL: Bob West Publications.

Wheeler, Gerald

.....1975 *The Two-tailed Dinosaur*. Nashville: Southern Publishing.

Whewell, William

.....1834 *Astronomy and General Physics Considered with Reference to Natural Theology*. London: William Pickering. One of the Bridgewater Treatises.

Whitcomb, John C.

.....N.d. [1966?] *Creation According to God's Word*. Grand Rapids MI: Reformed Fellowship.

.....1973 *The World That Perished*. Grand Rapids MI: Baker Book House.

.....1975 *The Origin of the Solar System: Biblical Inerrancy and the Double-Revelation Theory*. Philadelphia: Presbyterian and Reformed.

.....1984 *The Bible and Astronomy*. Winona Lake IN: BMH Books.

.....1986 [1972] *The Early Earth*. Grand Rapids MI: Baker Book House.

Whitcomb, John C., and Donald B. DeYoung

.....1979 *The Moon: Its Creation, Form and Significance*. Winona Lake IN: BMH Books.

Whitcomb, John C., and Henry M. Morris

.....1961 *The Genesis Flood: The Biblical Record and Its Scientific Implications*. Phillipsburg NJ: Presbyterian and Reformed.

White, A.J. Monty

.....1985 *How Old Is the Earth?* Welwyn, Herts., U.K.: Evangelical Press.

White, Andrew D.

.....1960 [1896] *A History of the Warfare of Science with Theology in Christendom*. 2 vols. New York: Dover.

White, Ellen G.

.....1958 [1890] *Patriarchs and Prophets*. Wash., D.C.: Review and Herald.

.....1986 [1920s] *Principles of True Science: or Creation in the Light of Revelation*. Payson, Ariz.: Leaves-of-Autumn Books. Compiled from the writings of E.G. White by Marion E. Cady.

White, Lynn

.....1967 "The Historical Roots of Our Ecological Crisis." *Science*: 155:1203-1207.

Whitehead, John W.

.....1977 *The Separation Illusion*. Milford MI: Mott Media.

Whitehead, John W., and John Conlan

.....1978 "The Establishment of the Religion of-Secular Humanism and Its First Amendment Implications." *Texas Tech Law Review*: -X(1):1-66.

Whitelaw, Robert L.

.....N.d. [1971?] *Does Christian Faith Depend on Scientific Fact?* Bible-Science Assoc.

.....1981 *Evolution and the Bible in the Light of 15,000 Radiocarbon Dates*.

Huntsville, Ont., Canada: MBC. Orig. pub. 1970 in *Creation Res. Soc. Q.* titled "Time, Life and History in the Light of 15,000 Radiocarbon Dates."

Whitney, Dudley J.

.....1946 *The Case for Creation*. Malverne NY: Christian Evidence League.

.....1955 *The Face of the Deep: A Defense of Divine Creation*. New York: Vantage Press.

.....1961 *Genesis versus Evolution: The Problem of Creation and Atheistic Science*. New York: Exposition Press.

Wiester, John L.

.....1983 *The Genesis Connection*. Nashville: Thomas Nelson.

Wigand, A.

.....1874-1877 *Der Darwinismus und-die Naturforschung Newtons und Cuviers*. Brunswick, Germany.

Wilder-Smith, A.E.

.....1970 *The Creation of Life: A Cybernetic Approach to Evolution*. San Diego: Master Book.

.....1975 [1966] *Man's Origin, Man's Destiny: A Critical Survey of the Principles of Evolution and Christianity*. Minneapolis: Bethany House.

.....1976 [1975] *A Basis for a New Biology*. St. Louis MO: Telos Int'l.

.....1981 *He Who Thinks Has to Believe*. San Diego: Master Books / Minneapolis: Bethany (co-pub.).

.....1981 *The Natural Sciences Know Nothing of Evolution*. San Diego: Master Books.

.....1983 *The Reliability of the Bible*. San Diego: Master Books.

Williams, Emmett, and George Mulfinger
.....1974 *-Physical Science for Christian Schools*. Greenville SC: Bob Jones Univ. Press.

Williams, Jon Gary
.....1970 *The Other Side of Evolution*. LaVergne TN: Williams Bros.

Williams, William A.
.....1928 [1925] *The Evolution of Man Scientifically Disproved*. Camden NJ: Rev. Wm. A. Williams.

Wilson, Clifford A.
.....1979 *Ebla Tablets: Secrets of a Forgotten City*. San Diego: Master:Books.

Wilson, Gordon, ed.
.....1964 *Another Look at Evolution: A Symposium*. Dickinson TX: M&W.

Winchell, Alexander
.....1870 *Sketches of Creation: A Popular View of Some of the Grand Conclusions of the Sciences in Reference to the History of Matter and of Life*. New York: Harper & Bros.

.....1877 *Reconciliation of Science and Religion*. New York: Harper & Bros.

.....1880 *Preadamites, or a Demonstration of the Existence of Man Before Adam*. Chicago: S.C Griggs.

Winrod, Gerald B.
.....1929 *Science, Christ and the Bible*. Chicago: Fleming H. Revell.

Wise, Kurt
.....1986a "How Fast Do Rocks Form?" In *Proc. First Int'l Conf. on Creationism: Vol. II*.

.....1986b "The Way Geologists Date." In *Proc. First Int'l Conf. on Creationism: Vol. I*.

Wiseman, P.J.
.....1949 *Creation Revealed in Six Days*. London: Marshall, Morgan and Scott.

Wlodyga, Ronald R.
.....1981 *The Ultimate Source of All Super Natural Phenomena*. Altadena CA: Triumph.

Wolfe, Samuel T.
.....1978 *A Key to Dooyeweerd*. Nutley NJ: Presbyterian and Reformed.

Wolthuis, Enno

.....1963 *Science, God, and You*. Grand Rapids MI: Baker Book House.

Wonderly, Dan E.

.....1977 *God's Time Records in Ancient Sediments*. Flint MI: Crystal Press.

Woodman, J.M.

.....1875 *God in Nature and Revelation*. Chico CA: John G. Hodge. (1888 ed. also inc. *The Neptunian or Water Theory of Creation, and The Song of Cosmology; or The Voice of God in the Science of Nature*.)

Woodrow, Ralph Edward

.....1984 *Noah's Flood, Joshua's Long Day, and Lucifer's Fall*. Riverside CA: Ralph Woodrow Evangelistic Assoc.

Woods, Andrew J.

.....1973 *The Center of the Earth*. San Diego: Inst. for Creation Research. ICR Technical Monograph No. 3.

World's Fundamentals Conference

.....1922 *Scriptural Inspiration versus Scientific Imagination*. Los Angeles: Biola Book Room.

Wright, George Frederick

.....1898 *Scientific Aspects of Christian Evidences*. New York: D. Appleton.

.....1906 *Scientific Confirmations of Old Testament History*. Oberlin OH: Bibliotheca Sacra.

.....1912 *Origin and Antiquity of Man*. Oberlin, Ohio: Bibliotheca Sacra.

Wright, W.E.

.....N.d. *Searching Science and Scripture*. Jos, Nigeria: SIMLIT.

Young, Davis A.

.....1977 *Creation and the Flood: An Alternative to Flood Geology and Theistic Evolution*. Grand Rapids MI: Baker Book House.

.....1982 *Christianity and the Age of the Earth*. Grand Rapids MI: Zondervan.

Young, Edward J.

.....1964 *Studies in Genesis One*. Philadelphia: Presbyterian and Reformed.

Young, Norman

.....1976 *Creator, Creation and Faith*. London: Collins.

Youngblood, Ronald

.....1980 *How It All Began: A Bible Commentary for Laymen Genesis I-II*. Ventura CA: G/L Regal Books (Gospel Light).

Zimmerman, Dean R.

.....1976 *Evolution: A Golden Calf*. Salt Lake City: Hawkes.

Zimmerman, Paul A.

.....N.d. [1963?] *We Are the Offspring of God*. S. Calif. Convention of Lutheran Church—Missouri Synod.

Zimmerman, Paul A., ed.

.....1959 *Darwin, Evolution, and Creation*. St. Louis MO: Concordia.

.....1972 [1966] *Creation, Evolution, and God's Word*. St. Louis MO: Concordia. (1966 ed. titled *Essays from the Creationist Viewpoint*.)

Zwemer, Samuel M.

.....1945 *The Origin of Religion*. New York: Loizeaux Bros.