

Creationism in 20th-Century America

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Scarcely 20 years after the publication of Charles Darwin's *Origin of Species* in 1859 special creationists could name only two prominent naturalists in North America, John William Dawson of McGill and Arnold Guyot of Princeton, who had not embraced some theory of organic evolution (1). Liberal churchmen were already beginning to follow their scientific colleagues into the evolutionist camp, and by the end of the century evolution was appearing even within the

The Antievolution Crusade

Early in 1922 William Jennings Bryan (1860–1925), Presbyterian layman, thrice the Democratic candidate for the presidency of the United States, and secretary of state under Woodrow Wilson, heard of an effort in Kentucky to ban the teaching of evolution in public schools. "The movement will sweep the country," he predicted hopefully, "and we will drive Darwinism from our schools"

Summary. As the crusade to outlaw the teaching of evolution changed to a battle for equal time for creationism, the ideological defenses of that doctrine also shifted, from biblical to scientific grounds. The development of "scientific creationism" is here described.

ranks of evangelical Christians. In the opinion of many observers, belief in special creation seemed destined to go the way of the dinosaurs. But contrary to the hopes of liberals and the fears of conservatives, it did not become extinct. The majority of late-19th-century Americans remained true to a traditional reading of Genesis, and as late as 1979 a public opinion poll revealed that half the adults in America continued to believe that "God created Adam and Eve to start the human race" (2).

This article focuses on the intellectual leaders of creationism, particularly the small number who claimed scientific expertise. Drawing on their writings, it traces the ideological development of creationism from the crusade to outlaw the teaching of evolution in the 1920's to the current battle for equal time. During this period the leading apologists for special creation shifted from an openly biblical defense of their views to one based largely on science. At the same time they grew less tolerant of notions of an old Earth and symbolic days of creation, common among creationists in the 1920's, and more doctrinaire in their insistence on a recent creation in six literal days and on a universal flood.

(3, p. 277). His prophecy proved overly optimistic, but before the end of the decade more than 20 state legislatures did debate antievolution laws, and at least five—Oklahoma, Florida, Tennessee, Mississippi, and Arkansas—passed restrictive legislation. Many individuals shared responsibility for these events, but none had a greater share than Bryan. His entry into the fray produced a catalytic effect and gave antievolutionists what they needed most; "a spokesman with a national reputation, immense prestige, and a loyal following" (3, p. 272).

The development of Bryan's own attitudes toward evolution closely paralleled that of the fundamentalist movement. Since early in the century he had occasionally alluded to the silliness of believing in monkey ancestors and to the ethical dangers of thinking that might makes right, but until the outbreak of World War I he saw little reason to quarrel with those who disagreed. The war, however, exposed the darkest side of human nature and shattered his illusions about the future of Christian society. Obviously something had gone awry, and Bryan soon traced the source of the trouble to the paralyzing influence of Darwinism on

the conscience. By substituting the law of the jungle for the teaching of Christ, it threatened the principles he valued most: democracy and Christianity. Two books in particular confirmed his suspicion. The first, Vernon Kellogg's *Headquarters Nights* (1917), recounted first-hand conversations with German officers that revealed the role of Darwin's biology in the German decision to declare war. The second, Benjamin Kidd's *Science of Power* (1918), purported to demonstrate the historical and philosophical links between Darwinism and German militarism (3, pp. 261–265).

About the time that Bryan discovered the relation between Darwinian ideas and the war, he also became aware, to his great distress, of unsettling effects the theory of evolution was having on America's own young people. From frequent visits to college campuses and from talks with parents, pastors, and Sunday School teachers, he learned about an epidemic of unbelief that was sweeping the country. Upon investigating the cause, reported his wife, "he became convinced that the teaching of Evolution as a fact instead of a theory caused the students to lose faith in the Bible, first, in the story of creation, and later in other doctrines, which underlie the Christian religion" (4). Again Bryan found confirming evidence in a recently published book, *Belief in God and Immortality* (1916), by the Bryn Mawr psychologist James H. Leuba, who demonstrated statistically that college attendance endangered traditional religious beliefs (3, pp. 266–267).

Armed with this information about the cause of the world's and the nation's moral decay, Bryan launched a nationwide crusade against the offending doctrine. Throughout his political career Bryan had placed his faith in the common people, and he resented the attempt of a few thousand scientists "to establish an oligarchy over the forty million American Christians" and to dictate what should be taught in the schools (5). To a Democrat like Bryan, it seemed preposterous that this "scientific soviet" would not only demand to teach its insidious philosophy but insist that society pay its salaries (3, p. 289). Confident that nine-tenths of the Christian citizens agreed with him (6), he decided to appeal direct-

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ly to them, as he had done successfully in fighting the liquor interests. "Commit your case to the people," he advised creationists. "Forget, if need be, the high-brows both in the political and college world, and carry this cause to the people. They are the final and efficiently corrective power" (7).

Leadership of the antievolution movement came not from the organized churches of America but from individuals like Bryan and interdenominational organizations such as the World's Christian Fundamentals Association, a predominantly premillennialist body founded in 1919 by William Bell Riley (1861–1947), pastor of the First Baptist Church in Minneapolis. Riley became active as an antievolutionist after discovering, to his apparent surprise, that evolutionists had already infiltrated the University of Minnesota (8). The early 20th century witnessed the unprecedented expansion of public education (enrollment in public high schools nearly doubled between 1920 and 1930), and fundamentalists like Riley and Bryan wanted to make sure that students attending these institutions would not lose their faith. Thus they resolved to drive every evolutionist from the public school payroll. One creationist went so far as to say that the German soldiers who killed Belgian and French children with poisoned candy were angels compared with the teachers and textbook writers who corrupted the souls of children with false teachings and thereby sentenced them to eternal death (9).

Creationist Science and Scientists

In 1922 William Bell Riley outlined the reasons why fundamentalists opposed the teaching of evolution: "The first and most important reason for its elimination," he explained, "is in the unquestioned fact that evolution is not a science; it is a hypothesis only, a speculation" (10). Bryan often made the same point, defining true science as "classified knowledge . . . the explanation of facts" (11). Although creationists had far more compelling reasons for rejecting evolution than that it was "not a science," their insistence on this point was not merely an obscurantist ploy. They based it on a once-respected principle, associated with Sir Francis Bacon, that emphasized the factual, nontheoretical nature of science (12). By identifying with the Baconian tradition, creationists could label evolution as false science, could claim equality with scientific au-

thorities in comprehending facts, and could deny the charge of being antiscientific. "It is not 'science' that orthodox Christians oppose," wrote a fundamentalist editor. "No! no! a thousand times, No! They are opposed only to the theory of evolution, which has not yet been proved, and therefore is not to be called by the sacred name of *science*" (13).

Creationists kept assuring themselves that the world's best scientists agreed with them. They received an important boost at the beginning of their campaign from an address by the distinguished British biologist William Bateson, in 1921, in which he declared that scientists had not yet uncovered "the actual mode and process of evolution" (14). Although he warned creationists against misinterpreting his statement as a rejection of evolution, they paid no more attention to that caveat than they did to the numerous proevolution resolutions passed by scientific societies.

The creationists could claim few scientists of their own: a couple of self-made men of science, one or two physicians, and a handful of teachers who, as one evolutionist described them, were "trying to hold down, not a chair, but a whole settee, of 'Natural Science' in some little institution" (15). Of this group, the most influential were Harry Rimmer (1890–1952) and George McCready Price (1870–1963).

Rimmer, a Presbyterian minister and self-styled "research scientist," obtained his limited exposure to science during one term at a small homeopathic medical school, where he picked up a vocabulary of "double-jointed, twelve cylinder, knee-action words" that later served to impress the uninitiated (16). He attended Whittier College and the Bible Institute of Los Angeles for a year each before entering full-time evangelistic work. About 1919 he settled in Los Angeles, where he set up a small laboratory at the rear of his house to conduct experiments in embryology and related sciences. Within a year or two he established the Research Science Bureau "to prove through findings in biology, paleontology, and anthropology that science and the literal Bible were not contradictory" (17, p. 278). The bureau staff—that is, Rimmer—apparently used income from the sale of memberships to finance anthropological field trips in the western United States, but Rimmer's dream of visiting Africa to find proof of the dissimilarity between gorillas and human beings never materialized. By the late 1920's the bureau lay dormant, and Rimmer signed on with Riley's World's

Christian Fundamentals Association as a field secretary (17, p. 279).

Besides engaging in research, Rimmer delivered thousands of lectures, primarily to student groups, maintaining the scientific accuracy of the Bible and ridiculing evolutionists. To attract attention, he repeatedly offered \$100 to anyone who could discover a scientific error in the Scriptures; the offer apparently never cost him any money (18). He also, by his own reckoning, never lost a public debate. After one encounter with an evolutionist in Philadelphia, he wrote home gleefully that "the debate was a simple walkover, a massacre—murder pure and simple. The eminent professor was simply scared stiff to advance any of the common arguments of the evolutionists, and he fizzled like a wet fire-cracker" (17, pp. 329–330).

Price, a Seventh-day Adventist geologist, was less skilled at debating than Rimmer but more influential scientifically. As a young man Price attended an Adventist college in Michigan for 2 years and later completed a teacher-training course at the provincial normal school in his native New Brunswick. The turn of the century found him serving as principal of a small high school in an isolated part of eastern Canada, where one of his few companions was a local physician. During their many conversations, the doctor almost converted his fundamentalist friend to evolution. Price nearly succumbed on at least three occasions, but each time he was saved by prayer and by reading the works of the Adventist prophetess Ellen G. White, who claimed divine inspiration for her view that the Noachian flood accounted for the fossil record on which evolutionists based their theory. As a result of these experiences, Price vowed to devote his life to promoting creationism of the strictest kind (19, 20).

By 1906 he was working as a handyman at an Adventist sanitarium in southern California. That year he published a small volume entitled *Illogical Geology: The Weakest Point in the Evolution Theory*, in which he brashly offered \$1000 "to any one who will, in the face of the facts here presented, show me how to prove that one kind of fossil is older than another." (Like Rimmer, he never had to pay.) According to his argument, Darwinism rested "logically and historically on the succession of life idea as taught by geology" and "if this succession of life is not an actual scientific fact, then Darwinism . . . is a most gigantic hoax."

In a review (21), David Starr Jordan,

president of Stanford University and an authority on fossil fishes, warned Price that he should not expect "any geologist to take [his work] seriously." The unknown author had written "a very clever book" but it was

a sort of lawyer's plea, based on scattering mistakes, omissions and exceptions against general truths that anybody familiar with the facts in a general way cannot possibly dispute. It would be just as easy and just as plausible and just as convincing if one should take the facts of European history and attempt to show that all the various events were simultaneous.

As Jordan recognized, Price lacked any formal training or field experience in geology. He was, however, a voracious reader of geological literature, an arm-chair scientist who self-consciously minimized the importance of field experience.

During the next 15 years Price occupied scientific settees in several Adventist schools and authored six more books attacking evolution, particularly its geological foundation. Although not unknown outside his own church before the early 1920's, he did not begin attracting national attention until then. Shortly after Bryan declared war on evolution, Price published *The New Geology* (1923), the most systematic and comprehensive of his many books. In it he presented his "great law of conformable stratigraphic sequences . . . by all odds the most important law ever formulated with reference to the order in which the strata occur." This law stated that "any kind of fossiliferous beds whatever, 'young' or 'old,' may be found occurring conformably on any other fossiliferous beds, 'older' or 'younger.'" To Price, so-called deceptive conformatives (where strata seem to be missing) and thrust faults (where the strata are apparently in the wrong order) proved that there was no natural order to the fossil-bearing rocks, all of which he attributed to the Genesis flood.

A Yale geologist reviewing the book for *Science* accused Price of "harboring a geological nightmare" (22), but Price's reputation among fundamentalists rose dramatically. Rimmer hailed *The New Geology* as "a masterpiece of REAL science [that] explodes in a convincing manner some of the ancient fallacies of science 'falsely so called'" (23). By the mid-1920's Price's by-line was appearing in a broad spectrum of conservative religious periodicals, and the editor of *Science* could accurately describe him as "the principal scientific authority of the Fundamentalists" (24).

The Scopes Trial and Beyond

In the spring of 1925 John Thomas Scopes, a high school teacher in the small town of Dayton, Tennessee, confessed to having violated the state's recently passed law banning the teaching of human evolution in public schools. His subsequent trial focused international attention on the antievolution crusade and brought William Jennings Bryan to Dayton to assist the prosecution. In anticipation of arguments on the scientific merits of evolution, Bryan sought out the best scientific minds in the creationist camp to serve as expert witnesses. The response to his inquiries could only have disappointed the aging crusader. Price, then teaching in England, sent his regrets—along with advice to Bryan to stay away from scientific topics (20, p. 24). Howard A. Kelly, a prominent Johns Hopkins physician who had contributed to the *Fundamentals*, confessed that, except for the creation of Adam and Eve, he believed in evolution (25). Louis T. More, a physicist who had just written a book entitled *The Dogma of Evolution* (1925), replied that he accepted evolution as a working hypothesis (26). Alfred W. McCann, author of *God—or Gorilla* (1922), took the opportunity to lecture Bryan for supporting prohibition in the past and for now trying "to bottle-up the tendencies of men to think for themselves" (27).

At the trial itself, things scarcely went better. When Bryan could name only Price and the deceased George Frederick Wright as scientists for whom he had respect, the caustic Clarence Darrow, attorney for the defense, scoffed:

You mentioned Price because he is the only human being in the world so far as you know that signs his name as a geologist that believes like you do . . . every scientist in this country knows [he] is a mountebank and a pretender and not a geologist at all.

Eventually Darrow forced Bryan to concede that the world was indeed far more than 6000 years old and that the 6 days of creation had probably been longer than 24 hours each (20, p. 24).

Though one could scarcely have guessed it from his public pronouncements, Bryan was far from being a strict creationist. In fact, his personal beliefs regarding evolution diverged considerably from those of his more conservative supporters. Shortly before the trial he had confided to Kelly that he, too, had no objection to "evolution before man but for the fact that a concession as to the truth of evolution up to man furnishes our opponents with an argument

which they are quick to use, namely, if evolution accounts for all the species up to man, does it not raise a presumption in behalf of evolution to include man?" Until biologists could actually demonstrate the evolution of one species into another, he thought it best to keep them on the defensive (28).

Bryan's concession at Dayton spotlighted a serious and long-standing problem among antievolutionists: their failure to agree on a theory of creation. Even the visible leaders could not reach a consensus. Riley, like Bryan, interpreted the days of Genesis as ages, believing that the testimony of geology necessitated this approach. Rimmer favored an exegesis that identified two separate creations in the first chapter of Genesis: the first, "in the beginning," perhaps millions of years ago, and the second, in six actual days, approximately 4000 years before the birth of Christ. He adopted this view in part because his scientific mind could not fathom how, given Riley's scheme, plants created on the third day could have survived thousands of years without sunshine until the sun appeared on the fourth (29). According to the testimony of acquaintances, he also believed that the Bible taught a local rather than a universal flood (30). Price, who cared not a whit about the opinion of geologists, insisted on nothing less than a single recent creation in six literal days and a worldwide deluge. He regarded Riley's day-age theory as "the devil's counterfeit" (31) and Rimmer's gap theory as only slightly more acceptable (32).

Although the court in Dayton found Scopes guilty as charged, creationists had little cause for rejoicing. The press had not treated them kindly, and the taxing ordeal no doubt contributed to Bryan's death a few days after the trial ended. Nevertheless, the antievolutionists continued their crusade, winning victories in Mississippi in 1926 and in Arkansas 2 years later. By the end of the decade, however, their legislative campaign had lost its steam. The presidential election of 1928, pitting a Protestant against a Catholic, offered fundamentalists a new diversion, and the onset of the depression in 1929 further diverted their energies.

But contrary to appearances, the creationists were simply changing tactics, not giving up. Instead of lobbying state legislatures, they shifted their attack to local communities, where they engaged in "the emasculation of textbooks, the 'purging' of libraries, and above all the continued hounding of teachers" (33). Their new approach attracted less atten-

tion but paid off handsomely, as school boards, textbook publishers, and teachers in both urban and rural areas, North and South, bowed to their pressure. Darwinism virtually disappeared from high school texts, and as late as 1941 one-third of American teachers feared being identified as evolutionists (34).

Creationism Underground

During the heady days of the 1920's, when their activities made front-page headlines, creationists dreamed of converting the world; a decade later, rejected and forgotten by the establishment, they turned their energies inward and began creating an institutional base of their own. Deprived of the popular press and unable to publish their views in organs controlled by orthodox scientists, they determined to organize their own societies and edit their own journals. Their early efforts, however, all encountered two problems: lack of a critical mass of scientifically trained creationists and lack of internal agreement.

About 1935 a small group of creationists, led by a Wheaton College professor, formed the Religion and Science Association to create "a unified front against the theory of evolution" (35, p. 159). Among those invited to participate in the association's first convention were representatives of the three major creationist parties, including Price, Rimmer, and one of Dawson's sons who, like his father, advocated the day-age theory (35, p. 209). But, as soon as the Price faction discovered that their associates had no intention of agreeing on a short Earth history, they bolted the organization, leaving it in shambles (36).

Shortly thereafter, in 1938, Price and some Adventist friends in the Los Angeles area, several of them physicians associated with the College of Medical Evangelists (now Loma Linda University), organized their own Deluge Geology Society and, between 1941 and 1945, published a *Bulletin of Deluge Geology and Related Science*. As described by Price, the group consisted of "a very eminent set of men. . . . In no other part of this round globe could anything like the number of scientifically educated believers in Creation and opponents of evolution be assembled, as here in Southern California" (20, p. 26). Perhaps the society's most notable achievement was its sponsorship in the early 1940's of a hush-hush project to study giant fossil footprints, believed to be human, discovered in rocks far older than the theory of evolu-

tion would allow. This find, the society announced, demolished that theory "at a single stroke" and promised to "astound the scientific world!" (37). But despite such success and the group's religious homogeneity, it too soon foundered—on "the same rock," complained a disappointed member, that wrecked the Religion and Science Association, that is, "pre-Genesis time for the earth" (38).

By this time creationists were also beginning to face a new problem: the presence within their own ranks of young university-trained scientists who wanted to bring evangelical Christianity more into line with mainstream science. The encounter between the two generations often proved traumatic, as is illustrated by the case of Harold W. Clark (born 1891). Once a student of Price's, he had gone on to earn a master's degree in biology from the University of California and taken a position at a small Adventist college in northern California. By 1940 his training and field experience had convinced him that Price's *New Geology* was "entirely out of date and inadequate" as a text, especially in its rejection of the geological column. When Price learned of this, he angrily accused his former disciple of suffering from "the modern mental disease of university-itis" and of currying the favor of "tobacco-smoking, Sabbath-breaking, God-defying" evolutionists. Despite Clark's protests that he still believed in a literal 6-day creation and universal flood, Price kept up his attack for the better part of a decade, at one point addressing a vitriolic pamphlet, *Theories of Satanic Origin*, to his erstwhile friend and fellow creationist (20, p. 25).

The inroads of secular scientific training also became apparent in the American Scientific Affiliation (ASA), created by evangelical scientists in 1941. Although the society adopted no statement of belief, during its early years strict creationists found its atmosphere congenial. However, in the late 1940's some of the more progressive members, led by a geochemist, J. Laurence Kulp, began criticizing Price and his followers for their attempts to compress Earth history into less than 10,000 years. Kulp, a Wheaton alumnus and a Plymouth Brother, had acquired a doctorate from Princeton University before joining the Department of Geology at Columbia University. Although initially suspicious of the conclusions of geology regarding the history and antiquity of the earth, he had come to accept them (39). As one of the first evangelicals professionally trained in geology, he felt a responsibil-

ity to warn his colleagues in the ASA about Price's work, which, he believed, had "infiltrated the greater portion of fundamental Christianity in America primarily due to the absence of trained Christian geologists." In what was apparently the first systematic critique of the "new geology" Kulp concluded that the "major propositions of the theory are contradicted by established physical and chemical laws" (40). Conservatives within the ASA not unreasonably suspected that Kulp's exposure to "the orthodox geological viewpoint" had severely undermined his faith in a literal interpretation of the Bible (41). As more and more ASA members drifted from strict creationism, a split appeared inevitable.

Henry M. Morris and the Revival of Creationism

In 1964 a historian predicted that "a renaissance of the [creationist] movement is most unlikely" (42). And so it seemed. But even as those words were penned a revival was under way, led by a Texas engineer, Henry M. Morris. Reared a nominal Southern Baptist, and a believer in creation, Morris as a youth had drifted unthinkingly into evolutionism and religious indifference. A thorough study of the Bible after his graduation from college convinced him of its absolute truth and prompted him to re-evaluate his belief in evolution. After an intense period of soul-searching he concluded that creation had taken place in six literal days because the Bible clearly said so and "God doesn't lie." Corroborating evidence soon came from the book of nature. While sitting in his office at Rice Institute, where he was teaching civil engineering, he would study the butterflies and wasps that flew in through the window; being familiar with structural design, he calculated the improbability of the development of such complex creatures by chance. Nature as well as the Bible seemed to argue for creation (43).

For assistance in answering the claims of evolutionists, he found little creationist literature of value other than the writings of Rimmer and Price. Although he rejected Price's peculiar theology, he took an immediate liking to his flood geology and incorporated it into a little book, *That You Might Believe* (1946), the first book, so far as he knew, "published since the Scopes trial in which a scientist from a secular university advocated recent special creation and a worldwide flood" (44). In the late 1940's he joined

the ASA—just in time to protest Kulp's attack on Price's geology. But his words fell on deaf ears. In 1953, when he presented some of his own views on the flood to the ASA, one of the few compliments came from a young theologian, John C. Whitcomb, Jr., who belonged to the Grace Brethren. Morris and Whitcomb subsequently became friends and decided to collaborate on a major defense of the Noachian flood. By the time they finished their project, Morris had earned a Ph.D. in hydraulic engineering from the University of Minnesota and was chairing the civil engineering department at Virginia Polytechnic Institute; Whitcomb was teaching Old Testament studies at Grace Theological Seminary in Indiana (43).

In 1961 they brought out *The Genesis Flood* (45), the most impressive contribution to strict creationism since the publication of Price's *New Geology* in 1923. In many respects their book appeared to be simply "a reissue of G. M. Price's views, brought up to date," as one reader described it (46). Beginning with a testimony to their belief in "the verbal inerrancy of Scripture" (45, p. xx) Morris and Whitcomb went on to argue for a recent creation of the entire universe, a fall that triggered the second law of thermodynamics, and a worldwide flood that in 1 year laid down most of the geological strata. Given this history, they argued, "the last refuge of the case for evolution immediately vanishes away, and the record of the rocks becomes a tremendous witness . . . to the holiness and justice and power of the living God of Creation!" (45, p. 451).

Despite the book's lack of conceptual novelty, it provoked an intense debate among evangelicals. Progressive creationists, who interpreted the days of Genesis symbolically, denounced it as a travesty on geology that threatened to set back the cause of Christian science a generation, while strict creationists praised it for making biblical catastrophism intellectually respectable. Its appeal, suggested one critic, lay primarily in the fact that, unlike previous creationist works, it "looked *legitimate* as a scientific contribution," accompanied as it was by footnotes and other scholarly appurtenances (47). In responding to their detractors, Morris and Whitcomb repeatedly refused to be drawn into a scientific debate, arguing that "the real issue is not the correctness of the interpretation of various details of the geological data, but simply what God has revealed in His Word concerning these matters" (48).

Whatever its merits, *The Genesis*

Flood unquestionably "brought about a stunning renaissance of flood geology" (49), symbolized by the establishment in 1963 of the Creation Research Society. Shortly before its publication Morris had sent the manuscript to Walter E. Lammerts, a Missouri-Synod Lutheran with a doctorate in genetics from the University of California. As an undergraduate at Berkeley Lammerts had discovered Price's *New Geology*, and during the early 1940's, while teaching at UCLA, he had worked with Price in the Creation-Deluge Society. After the mid-1940's, however, his interest in creationism had flagged, until reawakened by the Morris and Whitcomb manuscript. Disgusted by the ASA's flirtation with evolution, he organized in the early 1960's a correspondence network with Morris and eight other strict creationists, dubbed the "team of ten." In 1963 seven of the ten met with a few other like-minded scientists at the home of a team member in Midland, Michigan, to form the Creation Research Society (CRS) (50).

The society began with a carefully selected, 18-man "inner-core steering committee," which included the original team of ten. The composition of this committee reflected, albeit imperfectly, the denominational, regional, and professional bases of the creationist revival. There were six Missouri-Synod Lutherans, five Baptists, two Seventh-day Adventists, and one each from the Reformed Presbyterian Church, the Reformed Christian Church, the Church of the Brethren, and an independent Bible church (information about one member is lacking). Eleven lived in the Midwest, three in the South, and two in the Far West. The committee included six biologists but only one geologist, an independent consultant with a master's degree. Seven members taught in church-related colleges, five in state institutions; the others worked for industry or were self-employed (51).

To avoid the creeping evolutionism that had rent the ASA and to ensure that the society remain loyal to the Price-Morris tradition, the CRS required members to sign a statement of belief accepting the inerrancy of the Bible, the special creation of "all basic types of living things," and a worldwide deluge. It restricted membership to Christians (51). [Although creationists liked to stress the scientific evidence for their position, one estimated that "only about five percent of evolutionists-turned-creationists did so on the basis of the overwhelming evidence for creation in the world of nature." The remaining 95 percent were

creationists because they believed in the Bible (52).] To legitimize its claim to being a scientific society, the CRS published a quarterly journal and limited full membership to persons with a graduate degree in a scientific discipline (51).

At the end of its first decade the society claimed 450 regular members, plus 1600 sustaining members—those who did not meet the scientific qualifications (50, p. 63). Eschewing politics, the CRS devoted itself almost exclusively to education and research, funded "at very little expense, and . . . with no expenditure of public money." Among the projects it supported were expeditions to search for Noah's ark, studies of fossil human footprints and pollen grains found out of the predicted evolutionary order, experiments on radiation-produced mutations in plants, and theoretical studies in physics demonstrating a recent origin of the earth (53). A number of members collaborated in preparing a biology textbook based on creationist principles (54). In view of the previous history of creation science, it was an auspicious beginning.

While the CRS catered to the needs of scientists, a second, predominantly lay, organization carried creationism to the masses. Initiated in 1964 in the wake of interest generated by *The Genesis Flood*, the Bible-Science Association came to be identified by many with one man, Walter Lang, an ambitious Missouri-Synod pastor who assertively prized spiritual insight above scientific expertise (55). As editor of the widely circulated *Bible-Science Newsletter*, he vigorously promoted the Price-Morris line and occasionally provided a platform for individuals on the fringes of the creationist movement, such as those who questioned the heliocentric theory and who believed that Einstein's theory of relativity "was invented in order to circumvent the evidence that the earth is at rest" (56). Needless to say, the pastor's broad-mindedness greatly embarrassed creationists seeking scientific respectability, who feared such bizarre behavior would tarnish the entire movement (57).

Scientific Creationism

The creationist revival of the 1960's attracted little public attention until late in the decade, when fundamentalists became aroused about the federally funded Biological Sciences Curriculum Study texts, which featured evolution, and the California State Board of Education voted to require public school textbooks to include creation along with evolution.

This decision resulted in large part from the efforts of two southern California housewives, Nell Segraves and Jean Sumrall, associates of both the Bible-Science Association and the CRS. In 1961 Segraves learned of the U.S. Supreme Court's ruling in the *Madalyn Murray* case protecting atheist students from required prayers in public schools. Murray's ability to shield her child from religious exposure suggested to Segraves that creationist parents like herself "were entitled to protect our children from the influence of beliefs that would be offensive to our religious beliefs" (47, p. 58). It was this line of argument that finally persuaded the Board of Education to grant creationists equal rights.

Flushed with victory, Segraves and her son Kelly in 1970 joined an effort to organize a Creation-Science Research Center (CSRC), affiliated with Christian Heritage College in San Diego, to prepare creationist literature suitable for adoption in public schools. Associated with them in this enterprise was Henry Morris, who resigned his position at Virginia Polytechnic Institute to help establish a center for creation research. Because of differences in personalities and objectives, the Segraves in 1972 left the college, taking the CSRC with them, and Morris set up a new research division at the college, the Institute for Creation Research (ICR) (43). Morris announced that the new institute would be "controlled and operated by scientists" and would engage in research and education, not political action (58). During the 1970's Morris added five scientists to his staff and, funded mainly by small gifts and royalties from institute publications, turned the ICR into the world's leading center for the propagation of strict creationism (43). Meanwhile, the CSRC continued campaigning for the legal recognition of special creation, often citing a direct relation between the acceptance of evolution and the breakdown of law and order. Its own research, the CSRC announced, proved that evolution fostered "the moral decay of spiritual values which contributes to the destruction of mental health and . . . [the prevalence of] divorce, abortion, and rampant venereal disease" (59).

The 1970's witnessed a major shift in creationist tactics. Instead of trying to outlaw evolution, as they had done in the 1920's, antievolutionists now fought to give creation equal time. And instead of appealing to the authority of the Bible, as Morris and Whitcomb had done as recently as 1961, they consciously downplayed the Genesis story in favor of what they called "scientific creationism."

Several factors no doubt contributed to this shift. One sociologist has suggested that creationists began stressing the scientific legitimacy of their enterprise because "their theological legitimation of reality was no longer sufficient for maintaining their world and passing on their world view to their children" (47, p. 98). There were also practical considerations. In 1968 the U.S. Supreme Court declared the Arkansas antievolution law unconstitutional, giving creationists reason to suspect that legislation requiring the teaching of biblical creationism would meet a similar fate. They also feared that requiring the biblical account "would open the door to a wide variety of interpretations of Genesis" and produce demands for the inclusion of non-Christian versions of creation (60).

In view of such potential hazards, Morris recommended that creationists ask public schools to teach "only the scientific aspects of creationism" (61), which in practice meant leaving out all references to the 6 days of Genesis and Noah's ark and focusing instead on the evidence for a recent worldwide catastrophe and on arguments against evolution. The ICR textbook *Scientific Creationism* (1974) came in two editions: one for public schools, containing no references to the Bible, and another for use in Christian schools, which included a chapter on "Creation according to Scripture" (61).

In defending creation as a scientific alternative to evolution, creationists relied less on Francis Bacon and his conception of science and more on two new philosopher-heroes, Karl Popper and Thomas Kuhn. Popper required all scientific theories to be falsifiable; since evolution could not be falsified, argued the creationists, it was by definition not science. Kuhn described scientific progress in terms of competing models or paradigms rather than the accumulation of objective knowledge. Thus creationists saw no reason why their flood-geology model should not be allowed to compete on an equal scientific basis with the evolution model. In advocating this two-model approach to school boards, creationists were advised (62):

Sell more SCIENCE. . . . Who can object to teaching more science? What is controversial about that? . . . do not use the word "creation." Speak only of science. Explain that withholding information contradicting evolution amounts to "censorship" and smacks of getting into the province of religious dogma. . . . Use the "censorship" label as one who is against censoring science. YOU are for science; anyone else who wants to censor scientific data is an old fogey and too doctrinaire to consider.

This tactic proved extremely effective. Two state legislatures and various school boards adopted the two-model approach, and an informal poll of school board members in 1980 showed that only 25 percent favored teaching nothing but evolution (63).

Except for the battle to get scientific creationism into public schools, nothing brought more attention to the creationists than their public debates with prominent evolutionists, usually held on college campuses. During the 1970's the ICR staff alone participated in more than a hundred of these contests and, according to their own reckoning, never lost one (64). Morris preferred delivering straight lectures and likened debates to the bloody confrontations between Christians and lions in ancient Rome, but he recognized their value in carrying the creationist message to "more non-Christians and non-creationists than almost any other method" (65). Fortunately for him, an associate, Duane T. Gish, holder of a doctorate in biochemistry from the University of California, relished such confrontations. If the mild-mannered, professorial Morris was the Darwin of the creationist movement, then the bumptious Gish was its Huxley. He "hits the floor running," just like a bulldog, observed an admiring colleague; and "I go for the jugular vein," added Gish himself (66). Such enthusiasm helped draw crowds of up to 5000.

Early in 1981 the ICR announced the fulfillment of a recurring dream among creationists: a program offering graduate degrees in various creation-oriented sciences (67). Besides hoping to fill an expected demand for teachers trained in scientific creationism, the ICR wished to provide an academic setting where creationist students would be free from discrimination. Over the years a number of creationists had reportedly been kicked out of secular universities because of their heterodox views, and leaders had warned graduate students to keep silent, "because if you don't, in almost 99 percent of the cases you will be asked to leave" (68). Several graduate students took to using pseudonyms when writing for creationist publications.

To All the World

It is still too early to assess the full impact of the creationist revival sparked by Morris and Whitcomb, but its influence, especially among evangelical Christians, seems to have been immense. Not least, it has elevated the strict creationism of Price and Morris to

a position of apparent orthodoxy. It has also given creationism a claim to scientific respectability unknown since the deaths of Guyot and Dawson.

Unlike the antievolution crusade of the 1920's, which remained confined mainly to North America, the revival of the 1960's rapidly spread overseas as American creationists and their books circled the globe. Largely as a result of stimulation from America, including the publication of a British edition of *The Genesis Flood* in 1969, membership in the British Evolution Protest Movement, founded in 1932, quadrupled, and two new creationist organizations sprang into existence, the appearance of one, the Newton Scientific Association, coinciding with a visit by Morris to England in 1973 (69). On the Continent the Dutch assumed the lead in promoting creationism, encouraged by the translation of books on flood geology and by visits from ICR scientists in 1977 (70). Similar developments occurred elsewhere in Europe, as well as in Australia, Asia, and South America. By 1980 Morris's books alone had been translated into Chinese, Czech, Dutch, French, German, Japanese, Korean, Portuguese, Russian, and Spanish (71). Creationism had become an international phenomenon.

References and Notes

1. E. J. Pfeifer, in *The Comparative Reception of Darwinism*, T. F. Glick, Ed. (Univ. of Texas Press, Austin, 1974), p. 203.
2. *Christianity Today*, 21 December 1979, p. 14.
3. L. W. Levine, *Defender of the Faith: William Jennings Bryan* (Oxford Univ. Press, New York, 1965).
4. W. C. Williams, *William Jennings Bryan* (Putnam, New York, 1936), p. 448.
5. P. E. Coletta, *William Jennings Bryan* (Univ. of Nebraska Press, Lincoln, 1969), pp. 3 and 230.
6. W. J. Bryan to W. A. McRae, 5 April 1924 (Box 29, Bryan Papers, Library of Congress).
7. *Christian Fundamentalist* 2, 13 (1929).
8. M. A. Riley, *The Dynamic of a Dream* (Eerdmans, Grand Rapids, Mich., 1938), pp. 101-102.
9. T. T. Martin, *Hell and the High School* (Western Baptist Publishing Co., Kansas City, Mo. 1923), pp. 164-165.
10. [W. B. Riley], *Christian Fundamentals in School and Church* 4, 5 (April-June 1922).
11. W. J. Bryan, *In His Image* (Revell, New York, 1922), p. 94.
12. G. M. Marsden, *Fundamentalism and American Culture* (Oxford Univ. Press, New York, 1980), pp. 214-215.
13. L. S. Kleyser, *Bible Champion* 31, 413 (1925).
14. W. Bateson, *Science* 55, 55 (1922).
15. H. D. Curtis to W. J. Bryan, 22 May 1923 (Box 37, Bryan Papers).
16. H. Rimmer, *The Harmony of Science and Scripture* (Eerdmans, Grand Rapids, Mich., ed. 11, 1945), p. 14.
17. W. D. Edmondson, "Fundamentalist sects of Los Angeles, 1900-1930," thesis, Claremont Graduate School (1969).
18. *Christian Faith and Life* 45, 215 (1939).
19. This and the following paragraphs on Price closely follow (20).
20. R. L. Numbers, *Spectrum* 9, 22 (January 1979).
21. D. S. Jordan to G. M. Price, 28 August 1906 (Price Papers, Andrews University, Berrien Springs, Mich.).
22. C. Schuchert, *Science* 59, 486 (1924).
23. H. Rimmer, *Modern Science, Noah's Ark and the Deluge* (Research Science Bureau, Los Angeles, 1925), p. 28.
24. *Science* 63, 259 (1926).
25. H. A. Kelly to W. J. Bryan, 15 June 1925 (Box 47, Bryan Papers).
26. L. T. More to W. J. Bryan, 7 July 1925 (Box 47, Bryan Papers).
27. A. W. McCann to W. J. Bryan, 30 June 1925 (Box 47, Bryan Papers).
28. W. J. Bryan to H. A. Kelly, 22 June 1925 (Box 47, Bryan Papers).
29. W. B. Riley and H. Rimmer, *A Debate* (undated pamphlet in Riley Papers, Northwestern College Library, Roseville, Minn.).
30. R. D. Culver, *J. Am. Sci. Affiliation* 7, 7 (December 1955).
31. G. M. Price, *The Story of the Fossils* (Pacific Press, Mountain View, Calif., 1954), p. 39.
32. ———, *Outlines of Modern Christianity and Modern Science* (Pacific Press, Oakland, Calif., 1902), pp. 125-127.
33. M. Shipley, *Curr. Hist.* 32, 330 (1930).
34. W. B. Gatewood, Jr., Ed., *Controversy in the Twenties* (Vanderbilt Univ. Press, Nashville, 1969), p. 39; J. V. Grabiner and P. D. Miller, *Science* 185, 832 (1974).
35. *Christian Faith and Life* 42 (1936).
36. H. W. Clark to G. M. Price, 12 September 1937 (Price Papers).
37. *Newsletters*, Creation-Deluge Society, 19 August 1944 and 17 February 1945.
38. B. F. Allen to Board of Directors of the Creation-Deluge Society, 12 August 1945 (courtesy of Molleurus Couperus).
39. J. L. Kulp, *J. Am. Sci. Affiliation* 1, 20 (June 1949).
40. ———, *ibid.* 2, 1 (No. 1) (1950).
41. *Ibid.* 2, 2 (June 1950).
42. R. Halliburton, Jr., *Arkansas Hist. Q.* 23, 283 (1964).
43. Interviews with H. M. Morris, 26 October 1980 and 6 January 1981.
44. H. M. Morris, *That You Might Believe* (Creation-Life, San Diego, rev. ed., 1978), p. 10.
45. J. C. Whitcomb, Jr., and H. M. Morris, *The Genesis Flood* (Presbyterian and Reformed Publishing Co., Philadelphia, 1961).
46. R. M. Allen, *J. Am. Sci. Affiliation* 17, 62 (June 1965).
47. V. L. Bates, "Christian fundamentalists and the theory of evolution in public school education," thesis, University of California, Davis (1976).
48. H. M. Morris and J. C. Whitcomb, Jr., *J. Am. Sci. Affiliation* 16, 60 (June 1964).
49. D. A. Young, *Creation and the Flood* (Baker, Grand Rapids, Mich., 1977), p. 7.
50. W. E. Lammerts, *J. Christian Reconstruction* 1, 49 (summer 1974).
51. *Creation Res. Soc. Q.* 1 (No. 13) (July 1964).
52. [W. Lang], *Bible-Science Newsletter* 16, 2 (June 1978).
53. D. T. Gish, *Creation Res. Soc. Q.* 12, 34 (June 1975).
54. J. N. Moore and H. S. Slusher, Eds., *Biology: A Search for Order in Complexity* (Zondervan, Grand Rapids, Mich., 1970).
55. W. Lang, *Bible-Science Newsletter* 16, 1 (October 1978); *ibid.* 15, 2 (March 1977).
56. *Ibid.* 15, 4 (January-February 1977).
57. G. Wheeler, *Origins* 3, 101 (1976).
58. H. M. Morris, *Acts & Facts* 1 (June-July 1972).
59. N. J. Segraves, *The Creation Report* (Creation-Science Research Center, San Diego, 1977), p. 17.
60. H. M. Morris, *Acts & Facts* 3, 2 (September 1974).
61. ———, Ed., *Scientific Creationism* (Creation-Life, San Diego, general edition, 1974).
62. R. H. Leitch, *Bible-Science Newsletter* 18, 2 (March 1980).
63. *Am. School Board J.* 167, 52 (March 1980).
64. H. M. Morris, *Impact*, supplement to *Acts & Facts* 10, iii (January 1981).
65. ———, *ibid.* 3, 2 (March 1974).
66. Interview with Harold S. Slusher and D. T. Gish, 6 January 1981.
67. *Acts & Facts* 10, 1 (February 1981).
68. Interview with D. T. Gish, 26 October 1980.
69. E. Barker, in *On the Margins of Science*, R. Wallis, Ed. (*Sociological Review Monograph* 27, University of Keele, March 1979), pp. 179-200.
70. W. J. Ouweneel, *Impact*, supplement to *Acts & Facts* 7, i-iv (February 1978).
71. *Ibid.* 9, 2, 7 (February 1980).
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