

Creationist Pseudoscience

Scientific creationism is a classical pseudoscience in every way.

Robert Schadewald

The instructed Christian knows that the evidences for full divine inspiration of Scripture are far weightier than the evidences for any fact of science.

John C. Whitcomb and Henry M. Morris¹

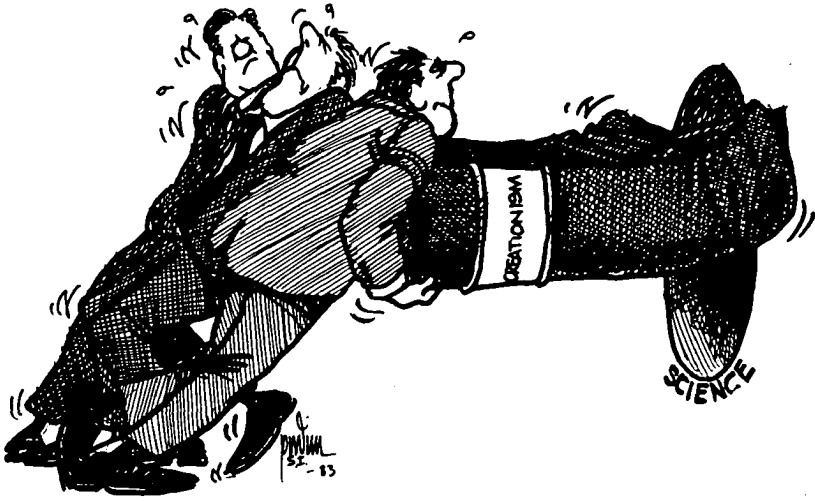
Scientific creationists consider the first chapters of Genesis the ultimate science textbook. They believe that the entire universe was created six to ten thousand years ago in six solar days. All earthly forms of life were specially created, and most of them perished in a global Deluge a few thousand years ago. The Deluge also laid down essentially all of the sedimentary rock on earth.

Many fundamentalists insist that these doctrines should be part of the public school science curriculum. In 1981, Arkansas creationists smuggled a bill through the legislature that would have forced public schools that teach evolutionary theory to give equal time to creationism, but it was thrown out by a federal court on January 5, 1982, after a challenge by the ACLU. The ACLU successfully challenged a similar law in Louisiana.

Pseudoscience

Scientific creationism is a classical pseudoscience, and it therefore differs from science in several fundamental ways. Essentially, science is an open system based on skeptical inquiry, and its ultimate appeal is to evidence. Scientists use inductive reasoning to formulate general laws from specific observations. A pseudoscience is a closed system based on belief, and its ultimate appeal is to doctrine. Pseudoscientists base their systems on

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deductive logic, deducing how the universe must act to conform with their doctrines. As Whitcomb and Morris indicated in the opening quotation, when the scientific facts conflict with their interpretation of the Bible, then the facts be damned!

The standard work on pseudoscience is Martin Gardner's *Fads and Fallacies in the Name of Science*, originally published in 1952. The first chapter is a profile of pseudoscience and the pseudoscientific personality and has not been improved upon in thirty years. I will therefore limit my general remarks on pseudoscience, referring readers to Gardner's work for a fuller treatment.

Pseudoscientists are of two types. One group consists of ordinary "cranks," self-proclaimed geniuses who seem motivated by contempt for conventional scientists. George Francis Gillette, discoverer of a remarkable "backscrowing theory of gravity," was an excellent example. The other type of pseudoscientist seeks to justify some sort of ideology with scientific arguments. Examples of the latter range from Nazi anthropologists to scientific creationists. Both types of pseudoscientists harbor feelings of personal greatness.

The classic scientific crank is characterized by paranoia. He (rarely she) has unshakable faith in his own ideas and considers all who fail to share his vision blind and ignorant. Conventional scientists are dismissed as hollow authority figures who maintain their positions by parroting the "party line" and preserving the status quo. The crank frequently considers them not only venal, but intellectually dishonest. Indeed, their rejection of the crank's ideas proves their venality and dishonesty and demonstrates how they plot against him.

The greatness that the classic crank claims for his own genius, the religiously motivated pseudoscientist vests in his relationship with God. For instance, Henry M. Morris, founder of the Institute for Creation Research and America's foremost scientific creationist, believes that the Second Coming of Christ may be expected momentarily. Part of the Doctrinal Position of Morris's Christian Heritage College is a belief in the Rapture of the Church. Before the upcoming "Seven-Year Tribulation Period," the saved will be bodily snatched up to Heaven, leaving the unsaved rabble to a horrible fate.² Such beliefs can imbue one "chosen" with a personal exaltation that no earthly force can humble. Thus Morris believes that his opinions on virtually all scientific matters are superior to those of the vast majority of scientists (i.e., all those who reject his biblical literalism).

As for plots, Morris's belief system is dominated by a supernatural plot. His universe is literally haunted by Satan and visited by various forms of supernatural intervention. He has written, for instance, that the moon's craters may be scars incidentally inflicted on that body during a cosmic battle between the forces of Satan and the armies of Michael the Archangel.³ He has also suggested in two of his books that Satan personally met with the Babylonian king Nimrod atop the tower of Babel to plot the theory of evolution.^{4,5} Therefore when Henry Morris argues that evolution is Satanic and that scientists reject creationism because Satan has blinded them,⁶ he's not speaking figuratively.

Pseudoscientists are characteristically blind to what they do not want to see. Ordinary cranks come by their irrationality through ignorance or personality defect. Many creation scientists, rather than being victims of crippled intellects, are self-mutilated. To accept the contradiction-riddled Bible as inerrant, they have schooled themselves in the art of finding reasons for whatever they want to believe. They have learned to ignore or rationalize away inconvenient facts, to avoid questioning (or even thinking about) key concepts, and to avoid pursuing lines of inquiry that threaten to contradict their received dogmas. In other words, they've trained themselves to shun the unfettered inquiry and hard-nosed skepticism that are the hallmarks of science.

Creation scientists therefore tend to fall naturally into patterns of thought and activity indistinguishable from those of ordinary cranks. Like secular cranks, they base their beliefs in exaggerated self-esteem and plot theories and maintain them by mangling logic and ignoring evidence. Personally, I find little to choose between the self-proclaimed "genius" and the self-proclaimed "humble instrument of the Almighty." The latter merely covers his delusions of grandeur with a cloak of false modesty. Indeed, I consider many scientific creationists merely garden-variety scientific cranks whose religious beliefs lead them to ride the creationist hobbyhorse rather than promoting (say) pushing gravity, the nonrotation of the moon, or the astronomical fantasies of Immanuel Velikovsky. I

emphasize, however, that this assumption is not necessary to explain the behavior of creationists.

Pseudoscientists frequently rely on the “if today ain’t the 4th of July then it must be Christmas” mode of reasoning. That is, they throw rocks at conventional science and then pull their personal rabbit out of a hat as the *only alternative*. In keeping with this tradition, creationist books, lectures, and debate presentations consist mainly of criticisms of orthodox science, to which they add a liberal sprinkling of theology. (Before the unsaved public, creationists try to conceal the theology by removing overt references to God and the Bible.) Most of their criticisms of science are dreary reading; but when creationists try to construct alternatives, they sometimes become interesting. Their offerings, however, are a far cry from science.

Science is a method for seeking reliable knowledge about the natural world by forming and testing hypotheses. Pseudoscientists erect their hypotheses as defenses against the facts, and they rarely dare to submit them to meaningful tests. The simplest way to demonstrate that creationism is pseudoscience is to try to treat it as science by subjecting creationist hypotheses to obvious and straightforward tests. The Institute for Creation Research is creationism’s foremost think-tank. In what follows, I examine ICR’s best-known argument against biological evolution as well as several of the structures they have erected to replace conventional science. Presumably these are examples of the “creation science” that ICR wants taught in public schools.

Thermoapologetics

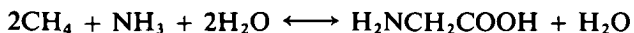
Duane Gish is vice-president of the Institute for Creation Research. A biochemist with a Ph.D. from Berkeley, he has for a decade been ICR’s most skillful propagandist. On the evening of February 4, 1982, Gish headed up a panel discussion on creationism at Tulane University. At one point, he offered a favorite apologetic, arguing that the Big Bang theory of the universe violates the second law of thermodynamics. While his exact words at Tulane were not preserved for posterity, Gish has publicly made this argument numerous times, essentially as follows:

We had that Cosmic Egg that exploded. Nothing operated on that Cosmic Egg from the outside of the cloud of hydrogen and helium. Nothing was brought from the outside. It transformed itself from that chaotic state. Certainly an explosion doesn’t generate order. It generates chaos. And from that initial chaotic state, we have the highly ordered universe that we have today. Now, ladies and gentlemen, that is directly contradictory to the second law of thermodynamics.⁷

A discussion period followed the panel at Tulane. According to an account probably written by Gish:

Most of the discussion was actually generated by two physical scientists from the Tulane faculty who were in the audience. They challenged Dr. Gish's claim that the Second Law of Thermodynamics contradicts the Big Bang theory of the origin of the universe, asserting that the universe has constantly been getting more disorderly since the Big Bang. Gish rejected this claim as an impossibility.⁸

Again, what the physicists said wasn't recorded, but they no doubt noted that, in thermodynamic terms, a relatively compact cosmic fireball at zillions of degrees is more "ordered" than our present, relatively cool universe, which is scattered over 15 billion light-years.⁹ It is not surprising that Gish would reject this argument, for he has made numerous other remarkable statements about thermodynamics. On one occasion, he argued that equilibrium constants cannot vary with temperature, or else they wouldn't be called "constants."¹⁰ (Equilibrium constants vary exponentially with temperature. Pressed about this later, Gish called it a "slip."¹¹ He later published a discussion of the following reaction:¹²



He did not explain how 15 hydrogen atoms on the left side of the reaction become 7 hydrogen atoms on the right, nor how 2 oxygen atoms on the left become 3 on the right.

Gish also seems impressed by the classic 1978 paper of creationist David R. Boylan entitled "Process Constraints in Living Systems."¹³ Boylan, dean of the College of Engineering at Iowa State University and Technical Adviser to the Institute for Creation Research, had previously written that "the Second Law has been particularly helpful in developing an apologetic against abiogenesis."¹⁴ In "Process Constraints," he attempted to show that living systems require a certain "kind" or "quality" of energy that is "intelligence or ordered energy."¹⁵ Such concepts are foreign to conventional thermodynamics, and another ISU scientist, John W. Patterson, challenged Boylan's thermodynamic arguments. In a blistering critique of the paper, Patterson charged that Boylan made a number of elementary errors, the worst being that perennial gaffe of beginning thermo students, trying to compute an entropy change for a system without first devising a reversible path.¹⁶

The editor of *Creation Research Society Quarterly* refused to print Patterson's critique,¹⁷ but several creationists collaborated in developing an apologetic against Patterson. Essentially they argued that Patterson's criticism was misdirected, in part because Boylan was really discussing a Steady State Steady Flow (SSSF) system. Announcing this to Patterson, Gish stated categorically and repeatedly that Boylan's paper contained absolutely no errors.¹⁸ The thermoapologists having at this point purchased new rope, Patterson broke off the private dialogue. In a subsequent paper alleging widespread creationist incompetence, he

pointed out that the entropy change in an SSSF system is zero *by definition*. "Hence," Patterson wrote, "Boylan's central result—i.e., his erroneous formula for the entropy change—should have come out identically zero (!) and not the nonvanishing sum whose limiting cases he discusses at great length."¹⁹

Meanwhile, in late 1981, the Creation Research Society published No. 1 in its new monograph series, a volume entitled *Thermodynamics and the Development of Order*. Chapter 2 is a popularized version of the Boylan paper with most of the fatal errors (the erroneous derivations) relegated to an appendix.²⁰ Chapter 4 is "The Origin of Biological Order and the Second Law," in which Duane Gish discusses the ersatz reaction quoted earlier. Where this little volume leaves thermoapologetics depends on your point of view. Gish and the others apparently see themselves reaching new heights of creation science. Conventional thermodynamicists also see them as elevated—and twisting in the wind.

Flood Geology

It is no accident that the foundation work of modern scientific creationism is *The Genesis Flood*. Flood geology is absolutely crucial to scientific creationism. Not only do creationists need the Flood to float Noah's Ark, but it is their only explanation for the geologic strata. The geologic column almost screams "ancient," but the creationists claim it is young. Furthermore, if conventional geology is correct then, whether by Darwinian evolution or some other means, various life forms appeared on earth sequentially over a long period of time. Thus, of the three major elements of scientific creationism, two of them (original special creation and young earth) are founded on the third. And a shaky foundation it is.

One of the many problems with Flood geology is that it cannot explain the distribution of fossils in geologic strata. In *The Genesis Flood*, Whitcomb and Morris attribute fossil distributions to a combination of habitat, victim mobility, and hydraulic sorting.

The habitat and victim-mobility apologetics go hand in hand. The argument is that creatures of the sea and seashore would be buried first, then slow-moving lowland animals like amphibians and reptiles, then faster and more mobile land mammals, and finally wily and speedy man would be swept from the mountaintops. This explanation, poor as it is for explaining animal fossils, fails entirely for plant fossils. We can test the hypothesis by asking about angiosperms (flowering plants). The earth's shorelines are covered by a tremendous variety of flowering plants, and none of them can run very fast. Thus we'd expect to find the flowering plants overwhelmed with the amphibians. Yet angiosperms appear suddenly in the early Cretaceous, along with mammals.

The hydraulic-sorting apologetic is much more outrageous. For objects of the same composition and shape, cross-sectional area is

proportional to the square of linear dimensions, while weight is proportional to the cube. Thus similar objects falling through a fluid medium are sorted according to size. If trilobites, for instance, were sorted hydraulically, we would find all large trilobites of a certain species low in the fossil record and all small ones higher. This follows directly from the hydraulic-sorting hypothesis. But it is decidedly not what we find. The hydraulic-sorting hypothesis fails the most elementary test, and it is difficult to see how Henry Morris, who flogs the public with his Ph.D. in hydraulic engineering, could fail to understand this.

Numerous other fatal flaws of Flood geology have been discussed elsewhere.^{21,22} Because it is so absurd, creationists will do almost anything to avoid discussing Flood geology in public debates. In a debate at Tampa on September 19, 1981, Henry Morris refused to answer the devastating attack on Flood geology made by biologist Kenneth Miller. Morris claimed it was because he preferred to talk about the “key issue” (biological evolution), but even the creationists in the audience knew better.

The Flood Waters and Continental Zip

Creationists have a tremendous problem explaining where the Flood waters could have come from. The late George McCready Price, the Seventh Day Adventist theologian who for thirty years was the leading anti-evolutionary writer, opted for a tidal wave caused by a near-collision with an astronomical body. Older creationists appealed to comet tails and sudden, radical shifts of the earth’s axis. Most scientific creationists follow the lead of the turn-of-the-century Quaker Isaac Newton Vail, who theorized that the earth was once surrounded by a vapor canopy.²³ The collapse of this canopy supposedly caused Noah’s Flood, and some creationists believe that a second canopy collapsed to cause *the* (as in *one*) Ice Age.

There are numerous and insuperable difficulties with a canopy. To mention three: (a) there are no reasonable conditions under which a vapor canopy containing most of the ocean’s waters would be stable; (b) the condensation of such a canopy would release as much energy (latent heat) as the earth receives from the sun in two or three centuries; and (c) the tremendous pressure at the base of such an atmosphere would be fatal to virtually all forms of terrestrial life. Indeed, creationist Robert E. Kofahl, science coordinator of the Creation-Science Research Center in San Diego, examined several variants of the canopy hypothesis and concluded that “without miraculous supernatural intervention into the natural order. . . they all are doomed to failure. They cannot be made to fit with the laws of physics or with the requirements for life on earth.” Kofahl, however, was not concerned about the lack of a natural mechanism, since “God is not inadequate . . . for any need or circumstance.”²⁴

Despite the obvious contradictions, Henry Morris adopted the vapor

canopy as his source for the Flood waters, and he bases other apologetics on it as well. For instance, he suggests that Methuselah and other pre-Flood patriarchs achieved their extreme longevity because the canopy shielded them from the aging effects of harmful radiation.²⁵ Because the canopy hypothesis fails miserably without divine intervention, Morris and other ICR creationists avoid discussing it before the unsaved; but it is a hidden part of the “creation model” that they want taught in public schools.

One creationist not satisfied with a supernaturally supported canopy is Walter Brown, director of the Institute for Creation Research’s Midwest Center in Wheaton, Illinois. A retired Air Force colonel with a Ph.D. in mechanical engineering from MIT, Brown has the kind of credentials and self-assurance that appeal to a creationist audience. As part of his ministry, he delivers daylong seminars entitled “In the Beginning . . .” In these seminars, Brown presents arguments he claims conventional scientists cannot answer. For example, he claims that coal could not have been formed in prehistoric peat bogs, since it takes at least five feet of peat to make a foot of coal and some coal seams are 100 feet thick. “Can anyone here imagine a peat bog 500 feet thick? I mean, it’s ridiculous! How could the bottom layers *grow*?”²⁶ Frankly, a conventional geologist asked the latter question probably *would* be struck speechless. The same reaction might be evoked by Brown’s solution to the problem of the Deluge waters, which might be called the Theory of Continental Zip.

Suppose the earth was originally created with an outer crust about five miles thick separated from a rocky inner core by a mile-thick layer of superheated water at 500° F. Suppose this superheated water broke through the earth’s crust in the middle of the prehistoric continent conventional geologists call *Pangaea*. The crust ripped like a rotten seam, the rip extending nearly around the earth. The escaping superheated water flashed into steam, and the continuing steam explosion tore loose megatons of dust and rock and carried them high into the atmosphere. The blast set the two halves of *Pangaea* in motion, and they slid away from each other over the remaining water. When most of the water had escaped, the zipping continents braked to a halt. The braking action caused buckling in the areas that first began to drag, thus raising mountain ranges. Meanwhile, the escaped steam condensed and it rained for forty days and forty nights. The earth was flooded and the turbulent waters laid down most of the earth’s present load of sedimentary rock, the sediments coming largely from material torn loose by escaping steam. Eventually the Flood waters ran off into the ocean basins, including the newborn Atlantic basin, which straddled the escape rift—the mid-Atlantic rift. The steam remaining in the atmosphere continued to fall as snow in the northern regions, causing a series of yearlong ice ages.

Any geologist who spends a few moments thinking about this Keystone Cops version of continental drift, which tries to compress tens of

millions of years into one year, will find numerous fatal objections. The most obvious comes from high school physics. At one of Brown's seminars, someone pointed out that his theory calls for releasing an enormous amount of 500° F water onto the earth's surface and into its atmosphere within a year. The energy must be conserved. Wouldn't things get unbearably hot? Brown said he hadn't tried to calculate what the effect would be, and he attempted to slough the objection off by claiming that the expanding steam would have a cooling effect. This offers at best temporary relief, since in condensing the Flood waters would again release their latent heat. Indeed, as I subsequently pointed out to Brown, just in cooling from 500° F to 212° F, the mass of water he hypothesizes would release roughly as much energy as the earth receives from the sun in a century. Brown admitted that this is a problem, but said his model has fewer difficulties than alternatives like the canopy.²⁷

Brown's marvelous theory of continental zip illustrates the perils faced by a creationist who tries to construct a scientific explanation for dogma. Brown makes a great potter about scientific methodology, offering two predictions whose failure he says would falsify his theory. First, he predicts that large amounts of primeval water remain below the earth's major mountain ranges. Second, he predicts that efforts to measure continental drift rates will be futile.

The Age of the Earth

Scientific creationists insist that the earth and universe are only 6,000 to 10,000 years old. In his first book, *That You Might Believe*, Morris argued that the conventional time-scale is "ridiculous" because it is contradicted by the growth trend for human population. Morris noted that if the original population of the world was two, doubling it 30 times would produce the 1946 population of 2,160,000,000. Since the 1600s, the population has doubled roughly every century. Morris concluded that the doubling rate was incompatible with any evolutionary scenario. "If, on the other hand, all people are descended from Noah and his wife, who according to the best biblical chronology must have lived about 4,500 years ago, then the average interval for doubling is 150 years, which is entirely reasonable."²⁸

It's hard to argue with that kind of logic. If a critic pointed out that, by this reasoning, the world population when the Great Pyramid was built must have been about 16, Morris would claim he was being ridiculed. Besides, Morris now has 69 other equally valid arguments against conventional geochronology, and he published all 70 in a laundry list in his 1977 book, *The Scientific Case for Creation*.²⁹ (This is still 30 fewer than flat-earther William Carpenter offered in *One Hundred Proofs that the Earth Is Not a Globe*.) To get an idea of the quality of the other arguments, consider the following example, based on a discussion by Dr. G. Brent

Dalrymple of the U.S. Geological Survey, Menlo Park, California.³⁰

Ask a creationist for the best evidence that the earth is young and he or she will probably cite the decay of the earth's magnetic field. Thomas G. Barnes, the present head of ICR's Graduate School, developed this apologetic, and he has presented it at creationist conventions, in creationist periodicals, and in an ICR "technical monograph."³¹ It is perhaps the creationists' most widely cited piece of "scientific research."

Barnes claims that the earth's magnetic moment has been measured reliably since about 1835 and that it is decreasing. He argues that the earth's magnetic field is generated by electric currents circulating in the earth's core, asserting that no mechanism (such as convection caused by radioactive decay) exists to sustain these currents. Barnes concludes that the earth's magnetic field must decay exponentially, and from data accumulated since 1835 he calculates a decay half-life of 1,400 years. He then argues that the earth cannot be older than about 10,000 years, since before that its magnetic field would have been unreasonably high. Typically, Barnes carefully avoids testing his hypothesis.

As it happens, the strength of the earth's magnetic field for the past several thousand years is well documented. Archaeologists have long used pottery styles and types to identify and date human habitation sites, and they have developed detailed and reliable pottery chronologies for many regions and cultures. Pottery is also of value to those studying paleomagnetism, for when fired pottery cools through a critical temperature (called the Curie temperature) it becomes permanently magnetized by the earth's field. By measuring the magnetic moments preserved in reliably dated pottery, specialists in paleomagnetism have reconstructed the history of the earth's magnetic field for the last several millennia. A recently developed and independent check on the pottery data is based on the moments preserved in mud bricks from historical sites.³² Barnes's hypothesis predicts that three half-lives (4,200 years) ago (when, according to Morris's "very reasonable" hypothesis, the human population was 16) the earth's magnetic field was eight times what it is now. The magnetic moments recorded in bricks and pottery from that era agree nicely: the earth's field then was slightly weaker than it is now.

Neither Barnes nor any other creationist has ever, so far as I know, acknowledged that such data exist. But Barnes's theory is not just flatly contradicted by the evidence. As Dalrymple pointed out, it is based on a hopelessly incorrect assumption.

Barnes essentially argues that the *total energy* of the earth's magnetic field is decaying with a half-life of 1,400 years, and the dynamo he hypothesizes to produce it would do just that. But the earth's magnetic field can be split into two components, the dipole and the nondipole moments. While the dipole moment is in fact decreasing, the nondipole moment is increasing at almost a matching rate, so that the total energy of the earth's magnetic field is decreasing hardly at all. This fatal fact, which

demonstrates that Barnes's scheme is unequivocally wrong, is discussed at length in the very book from which Barnes drew his data!³³

Creationist Astronomy

Perhaps the most outspoken critic of conventional science among the creationists is Harold S. Slusher of the University of Texas (El Paso) and the Institute for Creation Research. Slusher is also a foremost exponent of the conspiracy theory that holds that "evolutionists" conspire to suppress creationism. He has frequently accused conventional scientists of intellectual dishonesty and/or incompetence.³⁴

Slusher has long claimed the title "Doctor" based on his honorary D.Sc. from Indiana Christian University. (ICU is a Bible College that, when I last checked, had a 1/2-man graduate science department, i.e., a professor of natural science *and* mathematics.³⁵) He now boasts an earned Ph.D. from Columbia Pacific University, described by creationists as "a nontraditional university with two campuses in the Bay Area. The Graduate School is set up with a similar manner of operation to that of such European universities as the University of Vienna, the University of Bologna, and the Sorbonne (Paris)."³⁶ From the bologna about the Sorbonne and the universities of Vienna and Bologna, experienced creationist watchers will immediately (and correctly) infer that Columbia Pacific University is unaccredited.

Slusher is noted for championing the theory that light travels in highly curved Riemannian space and that the entire universe is actually only 15.7 (5 pi) light-years across. Even more remarkable is his discovery (published in his 1974 monograph, *A Critique of Radiometric Dating*) that the radioactive decay constant of the isotope iron-57 can be changed up to 3 percent under laboratory conditions.³⁷ In a recent, revised edition of this monograph, Slusher further claims that the decay constant of cesium-133 can likewise be altered.³⁸ Standard references unanimously agree that both isotopes are stable. (An iron-57 nucleus can exist in—and thus decay from—an excited state, but this decay has nothing to do with radiometric dating.)

Considering the foregoing, connoisseurs of pseudoscience would expect great things of a joint astronomical paper by Slusher and Barnes. In the December 1981 *Creation Research Society Quarterly*, they joined forces with G. Russell Akridge, formerly associated with Bob Jones University and now with Westminster Schools in Atlanta, Georgia. Akridge, who also teaches summer courses in astronomy at ICR's Graduate School, is author of several articles claiming that scientific speculations about decreases in the sun's diameter prove that the sun cannot be 5 billion years old. The Akridge-Barnes-Slusher paper, entitled "A Recent Creation Explanation of the 3°K Background Black Body Radiation,"³⁹ is a masterpiece of creation science.

The authors begin by asserting that the Big Bang theory cannot explain the 3°K background radiation. (This would surely have surprised the late George Gamow, who explicitly *predicted* the background radiation about 30 years before it was discovered.) They argue that, if such radiation were present initially, it would have escaped the universe long ago. (*Nothing* can escape a relativistic universe by any conventional means, and it's incredible that Akridge, Barnes, and Slusher, all three of whom have published articles about special relativity, do not seem to know that.) They also ridicule Big Bang theorists for basing their calculations on an expanding universe with finite volume and perfectly reflecting walls. (Cosmologists use this simple model instead of the rigorous relativistic equations because, within limits, it gives reliable answers with minimum hassle.)

But it is not the AB&S sins of omission and distortion that interest us here, but rather their pseudoscientific creation. After criticizing conventional theory, the authors offer their own explanation for the 3°K background radiation. They argue that the dust and gas of the galaxy were created at absolute zero and have been warming up ever since. According to their calculations, if the interstellar dust and gas have been warming up for about 6,800 years (roughly, since the traditional date for creation is 4004 B.C.), it should presently be at—surprise!—3°K.

Only an astronomer can properly appreciate the AB&S theory, but one contradiction is obvious to an informed layman. If the 3°K radiation came from dust and gas in the galaxy, its intensity would exhibit a strong maximum in the plane of the Milky Way, where most of the dust and gas are concentrated, and a minimum at the galactic poles. But (as AB&S state explicitly at the beginning of their paper) the intensity of the 3°K radiation is remarkably isotropic! Thus the AB&S theory fails the most obvious test imaginable.

Conclusions

The preceding examples of creation science came from the intellectual leaders of scientific creationism. Readers seeking more of the same should consult back issues of the *Creation Research Society Quarterly*, the *Bible-Science Newsletter*, *Acts & Facts/Impacts*, or any other creationist periodical. The *Creation Research Society Quarterly* especially provides a safe, slick-paper haven where creation scientists can publish their most bizarre rationalizations, confident that their colleagues will be too kind (or too blind) to insist that they subject their hypotheses to elementary tests. Because creationists refuse to test their hypotheses and accept the results, scientific creationism is a classical pseudoscience, and the gulf between it and mainstream science is unbridgeable.

Since they cannot win by the rules of science, creationists promote their doctrines by religious, political, and legal means. While Jerry Falwell

promotes creationism on television, thousands of other fundamentalist ministers push it from their pulpits; and many of them pay ICR propagandists to come into their churches and make presentations. The nation's largest Protestant denomination, the Southern Baptists, has officially endorsed the teaching of "creation science" in public schools.⁴⁰ They and other fundamentalists continually pursue this goal through legislation and school board action.

Scientific creationism is the best organized movement in the history of America pseudoscience, and thus the most dangerous. It is a dubious honor.

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