

6 Scientific creationism and intelligent design

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For the past century and a half no issue has dominated discussions of science and religion more than evolution. Indeed, many people see the creation–evolution debates as the central issue in the continuing controversy. And for good reason. More than a century after the scientific community had embraced organic evolution, many laypersons continued to scorn the notion of common descent. In the United States, where polls since the early 1980s have shown a steady 44–47 per cent of Americans subscribing to the statement that ‘God created human beings pretty much in their present form at one time within the last 10,000 years or so’, nearly two-thirds (65.5 per cent), including 63 per cent of college graduates, according to a 2005 Gallup poll, regarded creationism as definitely or probably true.¹ As we shall see, such ideas have been spreading around the world.

CREATION AND CREATIONISM

In 1929 an obscure biology teacher at a small church college in northern California self-published a book entitled *Back to Creationism*. This brief work, appearing just as the American anti-evolution movement of the 1920s was winding down, attracted little attention. And it would deserve scant mention today except for the fact that it was one of the first books to use the term ‘creationism’ in its title. Until well into the twentieth century critics of evolution tended to identify themselves as anti-evolutionists rather than creationists.²

Three factors help to explain this practice. First, the word already possessed a well-known meaning unrelated to the creation–evolution debate. Since early Christianity theologians had attached ‘creationism’ to the doctrine that God had specially created each human soul – as opposed to the traducianist teaching that God had created only Adam’s soul and that children inherited their souls from their parents. Second, even the most prominent scientific opponents of organic evolution

differed widely in their views of origins. Some adopted the biblical view that all organisms had descended from the kinds divinely created in the Garden of Eden and preserved on Noah's ark. Others, such as the British geologist Charles Lyell (1797–1875), advocated the spontaneous but non-supernatural appearance of species in regional centres or foci of creation. Still others followed the leading American anti-evolutionist, the Harvard zoologist Louis Agassiz (1807–73), in arguing for repeated plenary creations, during which 'species did not originate in single pairs, but were created in large numbers'.³ Third, even Bible-believing fundamentalists could not agree on the correct interpretation of the first chapter of Genesis. A majority probably adopted the ruin-and-restoration view endorsed by the immensely popular *Scofield Reference Bible* (1909), which identified two creations (the first 'in the beginning', the second associated with the Garden of Eden) and slipped the fossil record into the vast gap between the two events. Another popular reading of Genesis 1, advocated by William Jennings Bryan (1860–1925), the leading anti-evolutionist of the time, held that the days mentioned in Genesis 1 represented immense ages, each corresponding to a section of the geological column or perhaps to a period in the history of the cosmos. Only a handful of those writing against evolution insisted on what later came to be known as young-earth creationism but was then called flood geology: a recent special creation of all kinds in six twenty-four-hour periods and a geologically significant flood at the time of Noah that buried most of the fossils.⁴

Flood geology was the brainchild of the scientifically self-educated George McCready Price (1870–1963). A Canadian by birth, Price converted to Seventh-Day Adventism as a youth and accepted the writings of the Adventist prophetess Ellen G. White (1827–1915) as divinely inspired. Throughout her life White had experienced religious dreams and trance-like visions, which she and her followers saw as divine. During one episode she claimed to have been 'carried back to the creation and . . . shown that the first week, in which God performed the work of creation in six days and rested on the seventh day, was just like every other week'.⁵ She also endorsed a 6,000-year-old earth and a worldwide catastrophe at the time of Noah that had buried the fossils and reshaped the earth's surface.⁶ There was nothing novel about White's history, except its timing. By the middle of the nineteenth century, when she began writing, almost all evangelical expositors on Genesis and geology had conceded the antiquity of life on earth and the geological insignificance of Noah's flood.⁷

As a young man full of religious zeal, Price dedicated himself to providing a scientific defence of White's outline of earth history. Although he could scarcely tell one rock from another, he read the scientific literature voraciously – and critically. Early on it struck him that the argument for evolution all turned 'on its view of geology', which provided the strongest evidence for both the antiquity of life and its progressive development. But the more he read, the more he became convinced that the vaunted geological evidence for evolution was 'a most gigantic hoax'. Guided by Mrs White's 'revealing word pictures of the Edenic beginning of the world, of the fall and the world apostasy, and of the flood', he concluded that 'the actual facts of the rocks and fossils, stripped of mere theories, splendidly refute this evolutionary theory of the invariable order of the fossils, which is the very backbone of the evolution doctrine'.⁸

In 1906 Price published a booklet entitled *Illogical Geology: the Weakest Point in the Evolution Theory*, in which he offered a thousand-dollar reward 'to any who will, in the face of the facts here presented, show me how to prove that one kind of fossil is older than another'. Before his death in 1963 he would author some two dozen books, the most systematic and comprehensive being *The New Geology* (1923). In it, he restated his 'great "law of conformable stratigraphic sequences"', which he modestly described as 'by all odds the most important law ever formulated with reference to the order in which the strata occur'. According to this law, '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 conformities (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 Noah's flood.⁹

Despite repeated attacks from the scientific establishment, Price's influence among non-Adventist fundamentalists grew rapidly. By the mid-1920s the editor of *Science* could accurately describe Price as 'the principal scientific authority of the Fundamentalists', and Price's byline was appearing with increasing frequency in a broad spectrum of religious periodicals.¹⁰ Nevertheless, few fundamentalist leaders, despite their appreciation for Price's critique of evolution and defence of a biblical flood, gave up their allegiance to the gap and day-age theories for his flood geology.

In *Back to Creationism*, the book with which we began this chapter, one of Price's former students, Harold W. Clark (1891–1986), tried to

establish Price's Bible-based theory as the science of creationism. This new science, he wrote optimistically,

will interpret the records of the rocks, the lives of plants and animals, and human history, in the light of the creation story . . . As men go deeper into the science of creationism, the inmost secrets of the cell and the atom will display the power of the Creator in ways that have never been understood; and in the degeneracy and evil that biology and sociology bring to light will be seen the activity of the counter-power [i.e. Satan] that has been trying to mar the beautiful creation . . . The time is ripe for a rebellion against the domination of evolution, and for a return to the fundamentals of true science, BACK TO CREATIONISM.¹¹

ORGANIZED CREATIONISM

As the American anti-evolution movement petered out in the late 1920s, a few diehards tried to keep the protest alive by organizing a new society. Their efforts, however, immediately ran into two obstacles: a paucity of trained scientists and the continuing disagreement over the meaning of Genesis 1. Price had never finished college nor even taken an advanced course in science, though Clark in the early 1930s would earn a master's degree in biology at the University of California, Berkeley. Other anti-evolution activists with some exposure to science were Harry Rimmer (1890–1952), a Presbyterian evangelist and self-described research scientist who had briefly attended a homeopathic medical school; Arthur I. Brown (1875–1947), a Canadian surgeon whose handbills described him as 'one of the best informed scientists on the American continent'; S. James Bole (1875–1956), a professor of biology at Wheaton College, who had earned a master's degree in education and would in 1934 receive a PhD in horticulture from Iowa State College; and Bole's colleague on the Wheaton faculty, L. Allen Higley (1871–1955), a chemist.¹²

In 1935 Price, Clark, Rimmer and Higley joined with a few others to create 'a united front against the theory of evolution'. The resulting society, the Religion and Science Association, quickly dissolved, however, when the members fell to squabbling about the age of the earth, with Price and Clark supporting flood geology, Rimmer and Higley pushing for the gap theory, and still others arguing for the day-age interpretation. As one frustrated anti-evolutionist observed in the 1930s, fundamentalists were 'all mixed up between geological ages, Flood geology and ruin,

believing all at once, endorsing all at once'. How, he wondered, could evangelical Christians possibly turn the world against evolution if they themselves could not even agree on the meaning of Genesis 1?¹³

A few years after the demise of the Religion and Science Association Price and a small number of mostly Adventist colleagues in southern California, where he had retired, organized a Deluge Geology Society, which for several years in the early 1940s published a *Bulletin of Deluge Geology and Related Science*. The group consisted of 'a very eminent set of men', bragged Price. '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.' By far the best-trained scientist in the society was a Missouri Synod Lutheran, Walter E. Lammerts (1904–96), who had earned a PhD in genetics at the University of California, Berkeley, and was teaching horticulture at its southern branch in Los Angeles. The society's most exciting moment came in the early 1940s, when it announced the discovery of giant fossil footprints, believed to be human, in geologically ancient rocks. This find, one member predicted, would demolish the theory of evolution 'at a single stroke' and 'astound the scientific world!' But even this group of flood geologists, who all agreed on the recent appearance of life on earth, divided bitterly over the issue of 'pre-Genesis time for the earth', that is, whether the inorganic matter of the earth antedated the Edenic creation. About 1947 the society died.¹⁴

By this time a more ecumenical society of evangelical scientists had appeared on the scene: the American Scientific Affiliation (ASA). Created in 1941 by associates of the Moody Bible Institute, the association at first took a dim view of evolution. By the end of the decade, however, the presence of a number of well-trained young scientists who embraced theistic evolution (or its intellectual sibling, progressive creationism) was dividing the association. The most influential of the insurgents were J. Laurence Kulp (1921–2006) and Russell L. Mixer (1906–2007). Kulp, a Wheaton alumnus who had earned a doctorate in physical chemistry from Princeton University and then completed the course work for a second PhD in geology, had established himself at Columbia University as an early authority on radioisotope dating. As one of the first evangelicals with advanced training in geology, he spoke with unique authority. Worried that Price's flood geology had 'infiltrated the greater portion of fundamental Christianity in America primarily due to the absence of trained Christian geologists', he set about exposing its abundant scientific flaws. In an influential paper first read to ASA members in 1949, he concluded that the 'major propositions

of the theory are contraindicated by established physical and chemical laws'. Mixer, meanwhile, was pushing for greater acceptance of the evidence for limited organic evolution. While teaching biology at Wheaton College, he earned a doctorate in anatomy from the University of Illinois School of Medicine in Chicago in 1939. Before long he was nudging creationists to accept evolution 'within the order' and assuring them that they could 'believe in the origin of species at different times, separated by millions of years, and in places continents apart'.¹⁵

THE CREATIONIST REVIVAL

In 1954 Bernard Ramm (1916–92), a theologian-philosopher associated with the leadership of the ASA, brought out a book audaciously called *The Christian View of Science and Scripture*. Damning hyperorthodox Christians for their 'narrow bibliolatry' and 'ignoble' attitude towards science, this avatar of neo-evangelicalism urged Christians to stop obtaining their science from Genesis and adopt the progressive creationism so popular within the ASA. He dedicated his book to one of the founders of the ASA and thanked Kulp for vetting the book for 'technical accuracy'. Ramm aimed his harshest rhetoric at the flood geology of Price, whose growing influence among fundamentalists he regarded as 'one of the strangest developments of the early part of the twentieth century'. Despite Price's manifest ignorance, his brand of creationism had come, at least in Ramm's imagination, to form 'the backbone of much of Fundamentalist thought about geology, creation, and the flood'.¹⁶

Many evangelicals, including Billy Graham (b. 1918), hailed Ramm's book, but fundamentalists tended to respond angrily to what they regarded as an arrogant and heterodox attempt to equate progressive creationism with the Christian view. Ramm's attack provoked one young fundamentalist, John C. Whitcomb, Jr. (b. 1924), a Princeton-educated Old Testament scholar teaching (and working on a doctorate) at the fundamentalist Grace Theological Seminary, into turning his dissertation into a spirited response to Ramm and a defence of 'the position of George M. Price'. When Whitcomb approached the Moody Press about publishing his study, the editor recommended that the biblical scholar recruit a trained scientist as co-author. He eventually found an acceptable, if not perfect, partner: Henry M. Morris (1918–2006), a fundamentalist Baptist who had earned a PhD in hydraulics from the University of Minnesota and had just taken over as head of the large civil-engineering programme at Virginia Polytechnic Institute.¹⁷

As defenders of Price's flood geology, Whitcomb and Morris faced the difficult – perhaps impossible – task of not being dismissed as 'crack-pots' for trying to promulgate his theory. Early on Morris suggested to Whitcomb that it might be best 'simply to point out Price's arguments as a matter of historical record, and then leave your main emphasis on the Scriptural framework and the geological implications thereof'.¹⁸ Later, as he and Morris neared the end of their project, Whitcomb shared his own concerns about being identified with the disreputable Price and his strange church:

I am becoming more and more persuaded that my chapter on 'Flood Geology in the Twentieth Century' will hinder rather than help our book, at least in its present form. Here is what I mean. For many people, our position would be somewhat discredited by the fact that 'Price and Seventh-Day Adventism' (the title of one of the sections in that chapter) play such a prominent role in its support. My suggestion would be to supply for the book a fairly complete annotated bibliography of twentieth-century works advocating Flood-geology, without so much as a mention of the denominational affiliation of the various authors. After all, what real difference does the denominational aspect make?¹⁹

In the end the authors camouflaged their intellectual debt to Price by deleting all but a few incidental references to him and all mention of his Adventist connections.

In 1961, after Moody declined to publish their book, the Orthodox Presbyterian Rousas J. Rushdoony (1916–2001), founder of the ultra-right-wing Christian Reconstruction movement, guided them to a small fundamentalist press in Philadelphia, which finally brought out *The Genesis Flood*. Although one critic accurately described the book as 'a reissue of G. M. Price's views brought up to date', it created a sensation within the evangelical community.

Two years after the appearance of *The Genesis Flood* a small group of Christian scientists energized by Whitcomb and Morris' book – and increasingly annoyed by the ASA's drift towards evolution – walked out of the ASA and founded their own hyperorthodox society, the Creation Research Society (CRS). Leading this effort, both administratively and financially, was the Lutheran geneticist Lammerts, who until this time had maintained a low creationist profile. The initial eighteen-man CRS steering committee imprecisely reflected the theological composition of the emerging young-earth creationism movement: six Missouri Synod Lutherans, six Baptists (four Southern, one Regular,

and one independent), two Seventh-Day Adventists, and one each from the Reformed Presbyterian church, the Christian Reformed church, the Methodist church, and the Church of the Brethren. The committee included five biologists with PhDs earned at major universities, two more biologists with master's degrees, and one biochemist with a doctorate in that field. There were no physicians in the group and only one engineer, Morris. Twelve of the eighteen lived in the Midwest, four in the Southwest, one in California and one in Virginia.²⁰

The CRS claimed to be a 'research society', but it conducted few investigations outside of libraries. The chairman of the committee on research, Larry G. Butler (1933–97), a Baptist biochemist at Purdue University and one of the few active members of the CRS with a major academic appointment, grew increasingly frustrated with the proposals he received. Hoping to 'present an image of scientific respectability as much as possible without Biblical compromise', he diligently tried 'to exclude authentic psychopaths, cranks, and kooks' looking for a forum for their farfetched ideas. As he quickly discovered, too many fellow creationists suffered from a fondness for the sensational: 'We make astonishing observations (human footprints contemporary with dinosaurs); we postulate dramatic upheavals (sudden deposits of masses of ice from a planetary visitor); we propose sweeping scientific generalizations (negation of the entire system of ^{14}C dating).' Although some colleagues in the society pushed him for the presidency, he found himself increasingly impatient with what he called 'the lunatic fringe' of creationism. Discouraged by the failure of his efforts to raise the scientific standards of creationist research, he resigned from the board of directors in 1975 and later allowed his membership (in both the CRS and his church) to lapse.²¹

Despite a common commitment to young-earth creationism, disagreements soon arose. One of the most significant was over the issue of speciation. As biologists discovered more and more species, it became clear to creationists that Noah's ark could not have accommodated representatives of each one. Thus many of them adopted the solution of a former student of Price's, Frank Lewis Marsh (1899–1992), who argued that the Genesis kinds should be not equated with species but with families or what he called baramins. This solved the problem of space on the ark but created another one: how had the kinds preserved on the ark produced so many genera and species, and in only 4,300 years? It seemed likely, for example, that the *Canidae* family – including domestic and wild dogs, wolves, foxes, coyotes, jackals and dingoes – had descended from a single kind. Morris and most of his colleagues embraced rapid microevolution.

However, as a geneticist, Lammerts knew that that was scientifically impossible, that there must have been a second creation to repopulate the earth after the deluge. Unfortunately for him, the Bible never mentioned such an event, so his supernatural solution never caught on.²²

For a young-earth creationist organization, the CRS grew rapidly. On the occasion of its tenth anniversary it boasted a membership of 1,999, with 412 of them holding advanced degrees in science. By this time society leaders were switching from flood geology as the name of choice for their model of earth history and substituting the labels 'creation science' and 'scientific creationism'. In truth, there was little difference between the old and the new, except that scientific creationism made no mention of biblical events and persons, such as the Garden of Eden, Adam and Eve, and Noah's flood. However, the focus on the flood remained the same. Morris made this clear in a book entitled *Scientific Creationism* (1974):

The Genesis Flood is the real crux of the conflict between the evolutionist and creationist cosmologies. If the system of flood geology can be established on a sound scientific basis, and be effectively promoted and publicized, then the entire evolutionary cosmology, at least in its present neo-Darwinian form, will collapse.

This, in turn, would mean that every anti-Christian system and movement (communism, racism, humanism, libertinism, behaviorism, and all the rest) would be deprived of their pseudo-intellectual foundation.²³

Driving the switch in labels was a desire to have a product acceptable for use in public schools, especially in California, which was revising its guidelines for teaching science. Tellingly, *Scientific Creationism* appeared in two almost identical versions: one for public schools, stripped of all references to the Bible, and another for church schools, which retained biblical references and added a chapter on 'Creation according to Scripture'.²⁴

Scientific creationists liked to contrast the creation model of origins with the evolution model – and to insist that the former was just as scientific as the latter. In their own minds – and as revealed in their published writings – they loved science and simply wanted to protect its good name. In selling their two-model approach to school boards and state legislatures, they repeatedly appealed not only to their scientific credentials but to their desire to promote science. 'Stress that

creationists are not proposing to teach the “creation story of Genesis” in the schools,’ advised Morris, ‘but only to show that the facts of science can be explained in terms of the scientific model of creation.’²⁵

In 1968 the US Supreme Court struck down as unconstitutional the last of the laws from the 1920s outlawing the teaching of evolution. This forced creationists to abandon any thought of making the teaching of evolution illegal and turned their attention to writing legislation that would allow the teaching of creation science alongside that of evolution science. The creationists sought scientific status for their views in order to circumvent the constitutional separation of church and state, which had implications for the teaching of religion in schools. The Bill of Rights in the US Constitution forbade Congress from passing any ‘laws respecting an establishment of religion, or prohibiting the free exercise thereof’. Before the Second World War the Supreme Court had interpreted this narrowly in its literal sense; in the late 1940s, however, it held that the Constitution had erected ‘a wall of separation’ between church and state. At a time when public opinion polls were revealing that ‘half of the adults in the US believe God created Adam and Eve to start the human race’, the movement for ‘balanced treatment’ enjoyed a large reservoir of popular support.²⁶ In the end only two states, Arkansas and Louisiana, adopted the two-model approach. In 1982 a federal judge in Arkansas, having been tutored by the philosopher Michael Ruse (b. 1940) on the demarcation criteria that allegedly distinguished science from non-science, declared the Arkansas law to be an infringement of the constitutional requirement to keep church and state separate; three years later a court in Louisiana reached a similar decision. The US Supreme Court ratified these judgments in 1987, while allowing, in the words of one justice, that ‘teaching a variety of scientific theories about the origins of humankind to schoolchildren might be validly done with the clear secular intent of enhancing the effectiveness of science instruction’.²⁷

INTELLIGENT DESIGN

The Supreme Court’s decision dashed the hopes of creation scientists who had expected their stripped-down version of creationism to pass constitutional muster, but it did little to dampen the widespread antipathy towards evolution in America. Few found the decision more disappointing than two creationist authors, Dean H. Kenyon and Percival Davis, who had drafted a manuscript tentatively entitled *Biology and*

Creation in anticipation of the demand for a high-school textbook when the court ruled for creationism. Their optimistic publisher calculated a financial bonanza of 'over 6.5 million in five years'. When the court virtually wiped out the market for creationist texts, Kenyon and Davis quickly sanitized their manuscript by substituting *Of Pandas and People* for the original title and replacing the words 'creation' and 'creationists' with the euphemisms 'intelligent design' and 'design proponents'. As they defined it, intelligent design (ID) provided a frame of reference that 'locates the origin of new organisms in an immaterial cause: in a blueprint, a plan, a pattern, devised by an intelligent agent'.²⁸

Of Pandas and People may have begun as a conventional creationist work, but it put into play a new slogan in the ongoing campaign against evolution: intelligent design. The intelligent design movement began in the early 1990s with the publication of an anti-evolution tract, *Darwin on Trial* (1991), by a Berkeley law professor, Phillip E. Johnson (b. 1940). Upset by the anti-Christian stridency of some Darwinists – such as Richard Dawkins – the Presbyterian layman set out to expose what he saw as the logical weaknesses of the case for evolution, particularly the assumption made by its advocates that naturalism is the only legitimate way of doing science. Ever since investigators of nature in the early nineteenth century had shifted from natural philosophy (which allowed for appeals to the supernatural) to science (which did not), practitioners, regardless of religious persuasion, had refrained from invoking divine or diabolical forces when explaining the workings of nature. In short order, explaining nature naturally became the defining characteristic of science, for Christians as well as for atheists. In contrast to metaphysical naturalism, which denied the existence of a transcendent God, this methodological naturalism supposedly implied nothing about God's existence. Johnson vehemently disagreed. Professing to see little difference between methodological naturalism and scientific materialism, he set out to resacralize science or, as one admirer put it, 'to reclaim science in the name of God'. If the evidence warranted a supernatural explanation, Johnson argued, then invoking intelligent design should count as a legitimate scientific response. Intelligent design, as one insider conceded, was simply a politically correct way to refer to God.²⁹

Johnson aspired to pitch a tent big enough to accommodate all anti-evolutionists who were willing to set Genesis aside (at least temporarily) and focus on the purported scientific evidence against evolution. Although a few young-earth creationists sought shelter in the tent, Morris and other Bible-based creationists resented the effort of

the intelligent designers to marginalize their views and to avoid 'having to confront the Genesis record of a young earth and global flood'. In the mid-1990s the founder of the right-of-centre Discovery Institute in Seattle invited ID theorists to establish an institutional home within the institute called the Center for the Renewal of Science and Culture. Within a year or so they had raised 'nearly a million dollars in grants'. The most generous donor was Howard Fieldstead Ahmanson, Jr. (b. 1950), heir to a fortune made in the savings-and-loan business. An intimate of Rousas J. Rushdoony, the theocrat who had found a publisher for Whitcomb and Morris' *Genesis Flood*, Ahmanson, like his mentor, sought 'the total integration of biblical law into our lives'.³⁰

By this time several younger men had joined Johnson as the public face of the movement, among them Michael J. Behe (b. 1952), a Catholic biochemist at Lehigh University. In 1996 the Free Press of New York released Behe's *Darwin's Black Box: the Biochemical Challenge to Evolution*, the first anti-evolution book in seven decades published by a mainstream publisher.³¹ In his book Behe argued that biochemistry had 'pushed Darwin's theory to the limit . . . by opening the ultimate black box, the cell, thereby making possible our understanding of how life works'. The 'astonishing complexity of subcellular organic structure' – its 'irreducible complexity' – led him to conclude that intelligent design had been at work. 'The result is so unambiguous and so significant that it must be ranked as one of the greatest achievements in the history of science,' he concluded grandiosely. 'The discovery of [intelligent design] rivals those of Newton and Einstein, Lavoisier and Schroedinger, Pasteur and Darwin.'³² The tip of the hat to Darwin was no slip. In contrast to most of his colleagues in the movement, Behe did not rule out the possibility of divinely guided evolution.

More typical of attitudes towards theistic evolution within the ID camp was that of another rising star, the mathematician-philosopher William A. Dembski (b. 1960). 'Design theorists are no friends of theistic evolution,' he declared:

As far as design theorists are concerned, theistic evolution is American evangelicalism's ill-conceived accommodation to Darwinism. What theistic evolution does is take the Darwinian picture of the biological world and baptize it, identifying this picture with the way God created life. When boiled down to its scientific content, theistic evolution is no different from atheistic evolution.³³

On the origin of organic forms his position did not vary much from that of the scientific creationists. While acknowledging that organisms had 'undergone some change in the course of natural history', he believed that such changes had 'occurred within strict limits and that human beings were specially created'. As an expert in probability theory, Dembski focused on the unlikelihood of organisms arising by accident, and especially on a method for detecting intelligence, his much-maligned 'explanatory filter'. Like Johnson, Dembski attacked evolution as part of a much larger strategy to revolutionize the way science was practised. 'The ground rules of science have to be changed,' he declared quixotically. 'We need to realize that methodological naturalism is the functional equivalent of a full blown metaphysical naturalism.'³⁴ For a brief period at the turn of the millennium the prolific Dembski headed an ID centre at Baylor University, described as the 'first intelligent design think-tank at a research university'.

Intelligent design emerged as front-page news in 2005, after a group of parents in Dover, Pennsylvania, filed suit against the school board for promoting ID in ninth-grade biology classes. The religiously conservative board had instructed teachers to tell their students about the weaknesses in Darwin's theory and direct them to *Of Pandas and People*. The case, like the creation–science trials of the 1980s, hinged on whether the recommendation of ID theory constituted the teaching of religion and therefore violated the US Constitution. Behe appeared as the star witness for the defence but scarcely helped his side when he lamely, but honestly, conceded that ID 'does not propose a mechanism in the sense of a step by step description of how these structures arose'. In the end the judge condemned the school board for its actions – memorably declaring it a 'breathhtaking inanity' – and ruled that ID was 'not science' because it invoked 'supernatural causation' and failed 'to meet the essential ground rules that limit science to testable, natural explanations'. A conservative Christian himself, the judge rejected as 'utterly false' the assumption 'that evolutionary theory is antithetical to a belief in the existence of a supreme being and to religion in general'.³⁵

INTO ALL THE WORLD

Although scattered critics of evolution could be found around the globe throughout the twentieth century, organized anti-evolutionism rarely appeared outside the United States before the late twentieth century. When Price lived in England for four years in the mid-1920s he found

little interest in fighting evolution, even among conservative Christians. In the early 1930s, however, a band of British anti-evolutionists, led by the barrister and amateur ornithologist Douglas Dewar (1875–1957), formed the Evolution Protest Movement (EPM) – after the Zoological Society of London had rejected a paper of his on mammalian fossils, leading him to conclude that evolution had become ‘a scientific creed’. During its first quarter-century the EPM reached a membership of about two hundred and established tiny outposts in Australia, New Zealand, Canada and South Africa.³⁶

The creationist awakening in the United States in the 1960s sparked a number of brush fires around the world. The head of the somnolent EPM predicted that Whitcomb and Morris’ ‘revolutionary re-interpretation’ of earth history would usher in ‘a new era’. Indeed, it did. ‘More than any other single factor’, explained one British creationist, ‘this scholarly but highly controversial volume lifted creationism from the Gospel Hall tract-rack to the College seminar room.’ By 1980 young-earthers had largely captured the EPM; that year they changed its name to the Creation Science Movement. Just as American creationists dreamed of getting into the public school curriculum, British creationists aspired to air time on the BBC.³⁷ In the wake of visits from Morris and his irrepressible sidekick Duane Gish (b. 1921), sometimes joined by other colleagues at the Institute for Creation Research (founded in 1972), anti-evolutionists around the world began rallying around young-earth creationism. Still, as late as 2000, the American palaeontologist Stephen Jay Gould (1941–2002) confidently assured non-Americans that they had nothing to fear. ‘As insidious as it may seem, at least it’s not a worldwide movement,’ he said. ‘I hope everyone realizes the extent to which this is a local, indigenous, American bizarrry.’³⁸

Gould, a great scientist, proved to be a false prophet. Even as he spoke, creationism was becoming a truly global phenomenon, successfully overcoming its ‘Made in America’ label and flourishing not only among conservative Protestants but also among pockets of Catholics, Eastern Orthodox believers, Muslims and Jews. Conservative Protestants, however, continued to lead. In Australia, for example, young-earth creationists in 1980 established an energetic Creation Science Foundation.³⁹ After seven years one of its co-founders, the charismatic former high-school biology teacher Kenneth A. Ham (b. 1951), moved to the United States to work with Morris at the Institute for Creation Research. In 1994 he launched his own creationist ministry, Answers in Genesis (AiG), headquartered in northern Kentucky, just south of Cincinnati. Within a decade AiG had emerged as the most

dynamic creationist organization worldwide, with Ham alone speaking to more than 100,000 people a year. In 2007, to great fanfare, AiG opened an impressive \$27 million Creation Museum, which attracted hundreds of thousands of visitors annually. South Korea became another major centre of Christian creationism. Since its founding in the winter of 1980/1 the Korea Association of Creation Research has established branches throughout the land, published a successful bimonthly magazine and held thousands of seminars. In 2000 it began a programme of sending creationist missionaries to other countries, the first going to Indonesia, a predominantly Muslim country.

The spread of organized creationism from Christianity to Islam began in the mid-1980s, when the Muslim minister of education in Turkey contacted the Institute for Creation Research with a request to help promote a two-model curriculum that would teach both creation and evolution. In 1990 a small group of young Turks in Istanbul formed the Science Research Foundation (BAV in Turkish), headed by the shadowy Adnan Oktar (b. 1956), who had adopted the pen name Harun Yahya. A student first of interior design and then of philosophy, young Oktar had grown increasingly distressed with the materialism that flourished in Turkish universities, a philosophy he linked to Darwinism and Zionism. The activities of the cult-like BAV repeatedly brought him to the attention of the police, and earned him a jail sentence on at least three occasions. As part of their 'great intellectual campaign against Darwinism', Oktar and his circle produced scores of books, including *The Evolution Deceit: the Collapse of Darwinism and its Ideological Background* (1997), millions of copies of which circulated in many languages. Although the Qur'an did not require belief in a young earth, twenty-four-hour creation days or a global flood, Oktar for years drew heavily on the writings of young-earth creationists for his critique of evolution. By the early twenty-first century, however, he seemed to be moving into the more intellectually compatible ID camp – so much so that the Discovery Institute listed Harun Yahya's website as 'An Islamic Intelligent Design Site'. But in a pique over the ascendancy of a former disciple in the ID world, Oktar dismissed ID as just 'another of Satan's snares' because of its failure to recognize Allah. However branded, his anti-evolutionist crusade prompted a widespread debate among conservative Muslims.

On a much smaller scale creationism also acquired a foothold among Orthodox Jews, who, despite believing that God had created the world no more than 6,000 years ago, had typically paid little attention to Christian efforts to stop the spread of evolution. Occasionally

an individual Jew had spoken up, but it was not until 2000 that Jewish creationists organized the Torah Science Foundation, a largely Israeli-American group inspired by the Lubavitcher rebbe Menachem Mendel Schneerson (1902–94). Eager to maintain an identity separate from Christian fundamentalists, these Jewish anti-evolutionists meshed the teachings of the Torah and the Kabbalah with off-the-rack creationism to create a uniquely Jewish product.

Continental Europe, perhaps the most secular region on earth, at first proved resistant to American-style creationism. But conditions changed rapidly. With the demise of the Soviet Union in 1991, evangelical Christianity boomed in Russia, and along with it creationism. Before long bureaucrats in the Russian ministry of education were co-sponsoring creationist conferences, collaborating with American creationists on the writing of textbooks, and urging that creationism be taught to help restore academic freedom in Russia after years of state-enforced scientific orthodoxy. As one academician put it, 'no theory should be discounted after the long Communist censure'. Other former Soviet bloc countries – Poland, Hungary, Romania and Serbia – also witnessed the spread of creationism. In 2004 the Serbian minister of education, an Orthodox Christian, instructed primary school teachers that they should no longer have students read a dogmatic chapter on Darwinism in the commonly used eighth-grade biology textbook, and the following year the Romanian ministry of education granted permission for teachers in both public and Christian schools to elect to use a creationist alternative to the standard biology textbook.

Sporadic outbreaks of anti-evolutionism also occurred in western Europe. In 2004, for instance, the Italian minister of education announced her intention to eliminate the teaching of evolution for students aged eleven to fourteen, which prompted mass protests and a quick retreat. The following year the Dutch science and education minister triggered a fierce debate in the Netherlands by suggesting that the teaching of intelligent design might help to heal religious rifts because Christians, Jews and Muslims all believe in creation. The furore prompted one alarmed observer to ask 'Is Holland becoming the Kansas of Europe?'⁴⁰

Assessments of the depth of anti-evolution sentiment in Europe in the early twenty-first century must rely on public opinion surveys. One of the earliest polls of European attitudes towards creation and evolution, in 2002, found that 40 per cent favoured naturalistic evolution, 21 per cent endorsed theistic evolution, 20 per cent (with the Swiss leading the way) believed that 'God created all organisms at one time within the last 10,000 years', and 19 per cent remained undecided.⁴¹ Four years

later the BBC shocked many when it announced the results of a poll showing that 'four out of 10 people in the UK think that religious alternatives to Darwin's theory of evolution should be taught as science in schools'. The survey indicated that only 48 per cent of Britons believed that the theory of evolution 'best described their view of the origin and development of life': 22 per cent said that 'creationism' best described their views, 17 per cent favoured 'intelligent design', while 13 per cent were undecided.⁴²

According to a Gallup poll in 2005 almost twice as many Americans preferred 'creationism' to 'intelligent design', with 58 per cent of the respondents regarding creationism as definitely or probably true compared with 31 per cent for intelligent design and 55 per cent for evolution. (Such figures hint at a lack of clarity on the issues.) More than a quarter (28 per cent) reported being unfamiliar with intelligent design; 11 per cent, with creationism; 8 per cent, with evolution.⁴³

Well into the new century creationism and ID continued to roil American politics at the local, state and federal levels. The 2008 US presidential election was no exception. The Republican nominee for president, Senator John McCain, a Southern Baptist, advocated teaching students 'all points of view' about the origins of humans, as did his Pentecostal running mate, Governor Sarah Palin of Alaska. 'Teach both,' she said. 'You know, don't be afraid of information. Healthy debate is so important, and it's so valuable in our schools. I am a proponent of teaching both.' The Democratic candidates, though also religious, unequivocally supported science. Senator Barack Obama, a member of the United Church of Christ, dismissed ID as 'not science'. As he explained to the *York, Pennsylvania, newspaper*:

I'm a Christian . . . I believe in evolution, and I believe there's a difference between science and faith. That doesn't make faith any less important than science. It just means they're two different things. And I think it's a mistake to try to cloud the teaching of science with theories that frankly don't hold up to scientific inquiry.

His pick for the vice-presidency, Senator Joe Biden, a Catholic, dismissed ID as 'malarkey'.⁴⁴

The big question looming over this entire discussion is why so many people reject evolution. Unfortunately, there is no simple answer, such as lack of education or hatred of science. Most anti-evolutionists profess a love of science; they refer to young-earth creationism as creation science and regard intelligent design as a scientific theory. Some, such

as the Seventh-Day Adventists, reject evolution largely because their founding prophet told them that evolution was Satanic. Others, such as the Christian fundamentalists, believe that evolution contradicts the plain meaning of God's word in Genesis. Some critics have linked Darwinism with unsavoury social and political movements, such as German militarism after the First World War, to communism after the Second World War, to atheism and materialism today. Virtually all take the view, promoted by anti-evolutionists and scientific materialists alike, that evolutionary thought is incompatible with genuine religious belief. Faced with an apparently stark choice, they elect to maintain their religious faith. All of this suggests that these movements will not succumb to evolutionary orthodoxy any time soon.

Notes

- 1 Jeffrey M. Jones, 'Most Americans Engaged in Debate about Evolution, Creation', 13 October 2005, and David W. Moore, 'Most Americans Tentative about Origin-of-Life Explanations', 23 September 2005, both available at <http://poll.gallup.com>. The figure of 65.5 per cent appears in the profile for Question 30c, surveyed 5–7 August 2005.
- 2 Harold W. Clark, *Back to Creationism: a Defense of the Scientific Accuracy of the Doctrine of Special Creation, and a Plea for a Return to Faith in the Literal Interpretation of the Genesis Record of Creation as Opposed to the Theory of Evolution* (Angwin, CA: Pacific Union College Press, 1929). The only earlier book with which I am familiar is Judson D. Burns, *What is Man? or, Creationism vs. Evolutionism* (New York: Cochrane, 1908). Burns, a small-town physician in Iowa, defended the special creation of the first humans but ignored the meaning of 'creationism'.
- 3 Ronald L. Numbers, *Darwinism Comes to America* (Cambridge, MA: Harvard University Press, 1998), ch. 2, 'Creating Creationism: Meanings and Uses since the Age of Agassiz'. See also Nicolaas A. Rupke, 'Neither Creation nor Evolution: the Third Way in mid-Nineteenth Century Thinking about the Origin of Species', *Annals of the History and Philosophy of Biology* 10 (2005), 143–72.
- 4 Numbers, *Darwinism Comes to America*, pp. 52–3.
- 5 Ellen G. White, *Spiritual Gifts: Important Facts of Faith, in Connection with the History of Holy Men of Old* (Battle Creek, MI: Seventh-Day Adventist Publishing Association, 1864), pp. 90–1.
- 6 Much of this chapter is based on Ronald L. Numbers, *The Creationists: From Scientific Creationism to Intelligent Design*, expanded edn (Cambridge, MA: Harvard University Press, 2006); on White's views, see p. 90. See also Ronald L. Numbers, *Prophets of Health: a Study of Ellen G. White*, 3rd edn (Grand Rapids, MI: Eerdmans, 2008).

- 7 Rodney Lee Stiling, 'The Diminishing Deluge: Noah's Flood in Nineteenth-Century American Thought,' unpublished PhD thesis, University of Wisconsin-Madison (1991).
- 8 Numbers, *Creationists*, pp. 91–2.
- 9 *Ibid.*, pp. 95–7; George McCready Price, *The New Geology* (Mountain View, CA: Pacific Press, 1923), pp. 637–8.
- 10 *Science*, 5 March 1926, p. 259.
- 11 Clark, *Back to Creationism*, pp. 138–9. Regarding Clark, see Numbers, *Creationists*, pp. 142–8.
- 12 Numbers, *Creationists*, ch. 4, 'Scientific Creationists in the Age of Bryan'.
- 13 *Ibid.*, ch. 6, 'The Religion and Science Association'.
- 14 *Ibid.*, ch. 7, 'The Deluge Geology Society'.
- 15 *Ibid.*, ch. 9, 'Evangelicals and Evolution in North America'.
- 16 *Ibid.*, pp. 208–11.
- 17 This and the following two paragraphs are based on *ibid.*, ch. 10, 'John C. Whitcomb, Jr., Henry M. Morris, and *The Genesis Flood*'.
- 18 Henry M. Morris to J. C. Whitcomb, 7 October 1957, Whitcomb Papers.
- 19 J. C. Whitcomb to H. M. Morris, 24 January 1959, Whitcomb Papers.
- 20 *Ibid.*, ch. 11, 'The Creation Research Society'.
- 21 *Ibid.*, pp. 283–5.
- 22 Ronald L. Numbers, 'Ironic Heresy: How Young-Earth Creationists came to Embrace Rapid Microevolution by Means of Natural Selection', in Abigail J. Lustig, Robert J. Richards and Michael Ruse (eds.), *Darwinian Heresies* (Cambridge University Press, 2004), pp. 84–100.
- 23 H. M. Morris (ed.), *Scientific Creationism*, general ed. (San Diego: Creation-Life Publishers, 1974), p. 252.
- 24 Numbers, *Creationists*, ch. 12, 'Creation Science and Scientific Creationism'. On changing interpretations of the Constitution, see Edward J. Larson, *Trial and Error: the American Controversy over Creation and Evolution*, 3rd edn (New York: Oxford University Press, 2003), pp. 93–4.
- 25 *Ibid.*, pp. 276–7.
- 26 'The Christianity Today–Gallup Poll: an Overview', *Christianity Today*, 21 December 1979, pp. 12–15, p. 14. Beginning in 1982 Gallup began assessing what percentage of Americans subscribed to 'Creationism, that is, the idea that God created human beings pretty much in their present form at one time within the last 10,000 years.' Between 1982 and 2008 the number varied between 43 and 47 percent. See www.gallup.com/poll/21814/Evolution-Creationism-Intelligent-Design.aspx.
- 27 The best introduction to the legal debates over creationism is Larson, *Trial and Error*.
- 28 This section is based on Numbers, *Creationists*, ch. 17, 'Intelligent Design'.
- 29 On methodological naturalism, see Ronald L. Numbers, 'Science without God: Natural Laws and Christian Beliefs', in David C. Lindberg

- and Ronald L. Numbers (eds.), *When Science and Christianity Meet* (University of Chicago Press, 2003), pp. 265–85. The evangelical philosopher-theologian Paul de Vries coined the term in ‘Naturalism in the Natural Sciences’, *Christian Scholar’s Review* 15 (1986), 388–96.
- 30 For a scholarly appraisal of Reconstructionism, see Molly Worthen, ‘The Chalcedon Problem: Rousas John Rushdoony and the Origins of Christian Reconstructionism’, *Church History* 77 (2008), 399–437.
- 31 In 1925 Macmillan of New York published George Barry O’Toole, *The Case against Evolution*.
- 32 Michael J. Behe, *Darwin’s Black Box: the Biochemical Challenge to Evolution* (New York: Free Press, 1996), pp. 15 (ultimate black box), 232–3 (greatest achievements).
- 33 William A. Dembski, ‘What Every Theologian Should Know about Creation, Evolution, and Design’, *Transaction* 3 (May/June 1995), 1–8, p. 3.
- 34 *Ibid.*, pp. 7–8.
- 35 John E. Jones III, ‘Memorandum Opinion’, 20 December 2005, found on the NCSE’s web site.
- 36 Numbers, *Creationists*, ch. 8, ‘Evangelicals and Evolution in Great Britain’.
- 37 *Ibid.*, pp. 355–62.
- 38 This section is based largely on *ibid.*, ch. 18, ‘Creationism Goes Global’.
- 39 On creationism in Australasia, see Ronald L. Numbers, ‘Creationists and their Critics in Australia: an Autonomous Culture or “the USA with Kangaroos?”’, *Historical Records of Australian Science* 14 (June 2002), 1–12, and Ronald L. Numbers and John Stenhouse, ‘Antievolutionism in the Antipodes: From Protesting Evolution to Promoting Creationism in New Zealand’, *British Journal for the History of Science* 33 (2000), 335–50, both of which are reprinted in Simon Coleman and Leslie Carlin (eds.), *The Cultures of Creationism: Anti-Evolutionism in English-Speaking Countries* (Aldershot: Ashgate, 2004).
- 40 Martin Enserink, ‘Is Holland Becoming the Kansas of Europe?’, *Science* 308 (2005), 1394.
- 41 Ulrich Kutschera, ‘Darwinism and Intelligent Design: the New Anti-Evolutionism Spreads in Europe’, *NCSE Reports* 25 (September–December 2003), 17–18.
- 42 Numbers, *Creationists*, p. 408; www.Mori.com/polls/2006/bbc-horizon.shtml. See also Joachim Allgaier and Richard Holliman, ‘The Emergence of the Controversy around the Theory of Evolution and Creationism in UK Newspaper Reports’, *Curriculum Journal* 17 (2006), 263–79.
- 43 See www.gallup.com/poll/21814/Evolution-Creationism-Intelligent-Design.aspx; Moore, ‘Most Americans Tentative’.
- 44 C. J. Karamartin, ‘McCain Sounds like Presidential Hopeful’, *Arizona Daily Star*, 24 August 2005, at www.azstarnet.com/sn/politics/90069; Tom Kizzia, ‘“Creation Science” Enters the Race’, *Anchorage Daily News*, 27 October 2006, at dwb.adn.com/news/politics/elections/v-printer/story/8347904p-8243554c.html; Flynn Murphy, ‘Obama

Townhall: Math, Science Add Up', *Naperville Sun*, 18 January 2006, obama.senate.gov/news/060118-obama_townhall/ (not science); Tom Joyce, 'Obama Talks about York', *York Sunday News*, 30 March 2008, pp. 1, 7; 'Real Time with Bill Maher', Episode 74, 7 April 2006, interviewing Joe Biden.