

Chapter 7



The Rise of Creationism: Young Earth Creationism and Intelligent Design, 1961–2007

In recent decades “Creationism” has caused immense controversy in America and throughout world. Many people, when they consider evangelicals and science, immediately think of creationism. My purpose in this chapter is to put it in context of the history of Evangelicalism and consider its attraction today. My historical account is very brief as Ron Numbers (Numbers, 1992, 2006) gave it in detail and the scientific aspects are expounded by Eugenie Scott (Scott, 2004). Most states in the United States have had attempts to mandate the teaching of *creationism* or *design*. The most significant case was in Arkansas in 1981 followed by Kansas in 1999 and 2005 and Dover, Pennsylvania, in 2005. None have had more than temporary success. Two presidents have indicated some support and polls indicate that nearly half of Americans believe in creationism. Often *creationism* is seen as purely American, but it is now worldwide. *Creationism versus evolution* attracts extremes of hostility or loyalty and since Henry Morris launched the movement with the book *The Genesis Flood* in 1961, it has produced more heat than light. “Scientists” cannot understand how *creationists* can be so stupid and many evangelicals see *creationism* as defending their faith in a hostile world. Good manners are at a premium and there is often little attempt to *empathize* with what *creationists* believe and, more importantly, why. This letter puts it in the perspective of an evangelical parent, who sent this e-mail in 2004 to “Ask a geologist.”¹

Dear Christian Geologist:

As a Bible-believer, I accept God’s own narrative of how the world started, but my 5th grade boy is being subjected to ridicule for trying to hold to the worldwide

Flood that killed them [dinosaurs] and every other living animal less than 5,000 years ago.

They are being taught that these animals existed up to about 95,000,000 years ago, as “proved” by fossil evidence and radiocarbon dating! Clearly not a Biblical teaching. They say that any flood was local in nature and there is no “scientific support” for a worldwide flood as seen in fossils and geology.

I’m sure true science and God’s Word can’t be at odds. Is there a single book you could recommend that gives the Bible Christian an answer to these and other questions of science or pseudo-science? I can’t afford to home-school my kids but am terribly worried about the erosion of their faith in such a godless atmosphere where the most bizarre non-Biblical ideas are accepted as true!

Thanks very much.

In the Lord,

A hostile response guarantees its survival as no attempt is made to understand its appeal. The initial reaction of many when they first come across Young Earth Creationism (YEC) is to deride it as it runs counter to all accepted ideas of geology and evolution. As a result flame wars occur. So we need to understand its beguiling attraction.

I use the long-winded Young Earth Creationism deliberately, although YECs prefer to call themselves as *Creationist*. My reasons are twofold. First, prevents the use of *Creationism* to describe forms of creationism held before Darwin. Secondly, it implies that Christians who are not YEC are not creationists. That is a good debating tactic, as it excludes the middle ground and so non-YECs can be seen as a *compromisers* (Sarfati, 2004). The word “creationist” for YEC dates back to the 1960s and was rarely used in that context before that (Numbers, 1998, chap. 2). In 1859 a “creationist” was usually someone who believed in the special creation of the soul. Darwin used the undefined “ordinary view of creation” to discredit his opponents. As few held to a 6,000-year old earth then, Darwin was referring to nineteenth century progressive creationism. The term was adopted by McCready Price and slowly took hold. Even so Mixer used creationism to describe his own mildly evolutionary views, in that he and others were creationists and “in this sense creationists can be called evolutionists.” In 1954 Ramm used the term “Progressive Creationist” of himself. However the result was that YECs, and they alone, came to be called “creationists” with the resultant polarization.

WHAT YOUNG EARTH CREATIONISM IS?

It is best to start with a general summary of YEC beliefs, though YEC is not monolithic.

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The earth and universe are no more than 10,000 years old and this is supported by the best modern science.

Most of the fossiliferous strata from the Cambrian (550 my) to the Pleistocene (10,000 years) were laid down in the Noachian Deluge.

Evolution from the primordial sludge (goo) to humans (you) did not happen and contradicts true science.

During the Creation Week, God originally created “kinds,” for example, horse kind, which have micro-evolved into related species.

Standard “evolutionary–uniformitarian” geology, biological evolution and cosmology are flawed and based on false assumptions.

“Evolution” and “evolutionary geology” are based on atheistic assumptions stemming from the Enlightenment, including an insistence on randomness and chance, which excludes the possibility of a Creator God. Geology, with its long ages, is based on the assumption of evolution.

When the Bible is read correctly, without atheistic and Enlightenment presuppositions, the Book of Genesis only makes sense when read literally with a Creation in six solar days, a Fall resulting in the introduction of pain and death to the animal world, and that there was a world-wide deluge lasting a year during the lifetime of Noah. Only Noah, his family and two of every “kind” survived the flood. (This is alleged to be the traditional view of Christians.) There are many minor tenets. A few YECs are also geocentrists, for example Bouw and Bowden. For further details consult almost any YEC Web site.

THE APPEAL OF YOUNG EARTH CREATIONISM

The appeal of YEC cannot be understood without grasping the deeply felt reasons for believing what many scientists think nonsense. YEC provides the “scientific” capping to a “biblical world view,” which provides an all-embracing outlook on life and integrates every aspect of life. It enables one to oppose non-Christian world views and to be confident in the “Culture Wars.” Recently many evangelicals have stressed the uniqueness of the biblical world view against the secular world view, which may look to science for its justification. This is expounded, for example by John MacArthur of *The Master’s College* in California in *Think Biblically* (MacArthur, 2003) and on the AIG Web site.

The reasons for accepting YEC are interrelated and are threefold being theological, moral and anti-reductionist. These predicate the scientific objections to “evolution” and are more than adherence to a literal Bible.

The most important reason for accepting YEC is a concern for salvation through Christ. The heart of evangelical faith is redemption through the death of Christ, expressed as Substitutionary Atonement in that Jesus’

death on the cross forgives sin and takes away the penalty of death. This goes back to St. Anselm of Canterbury in the eleventh century. Since the late eighteenth century, the corollary of an ancient earth was that animals were living and dying long before humans, thus most evangelicals have limited the “death” brought about by the Fall to humans, and regard animal death as of no consequence to the atonement. However some evangelicals in the early nineteenth century, for example George Bugg, and YECs today argue otherwise and that physical death came in at the Fall (Genesis 3), and that the Fall resulted in a Curse over all creation, and before that no animal died or suffered. If T. Rex had actually attacked and killed herbivores 100 million years ago, then the whole Christian Faith will collapse like dominoes, hence the geological timescale *must* be false. This is at the heart of YEC arguments as expounded by Sarfati (2004, pp. 195–224), and Whitcomb in the appendix to *The Genesis Flood* (Morris and Whitcomb, 1961). Carefully presented (with evangelistic overtones) this is crucial.

The authority of the Bible is central to evangelicals, who often interpret it in its plain or literal sense. For early Genesis, that means creation in six days and a worldwide flood. A Young Earth model supports this “scientifically,” so YEC is the *only* valid interpretation. A further “biblical” appeal is the Sabbath as the day of rest. The Fourth Commandment reads, “Remember the Sabbath day, to keep it holy. Six days you shall labor, and do all your work. . . . for in six days the LORD made heaven and earth, the sea, and all that is in them, and rested the seventh day” (Exodus 20 vs 8–11). Hence the Sabbath is dependent on a six-day creation and thus “billions” of years must be wrong. To reject this is to reject the Commandments.

Hence the biblical arguments for YEC are threefold, first, upholding the plain sense of scripture, which is inerrant in history and science, second, buttressing salvation through Christ’s death, dependent on no death before the Fall, and third, defending the Commandments. As these are essential to evangelical belief then a Christian *must* be YEC. The appeal is irresistible. Well, almost.

We have already seen how moral concerns motivated the anti-evolutionists of the 1920s. YEC has amplified this position and stress that evolution leads to immorality of every kind. In his book *The Genesis Solution* (Ham and Taylor 1988, p. 97). Ham argues that evolution leads to a decrease in marriage, an increase of suicides, euthanasia, pornography, abortions, promiscuity, sexual abuse, homosexuality, theft, violence, racism, etc. Hence evolution is contrary to family values. The concern to counter teaching evolution partly stems from this.

A further appeal of YEC is the opposition to *Reductionism*, or *Nothing-buttery* as Donald Mackay called it. This is the view that everything is *nothing but* physics and chemistry and that there is nothing distinct about humans. Reductionism often stems from a scientific materialist

philosophy. Opposition to reductionism is by no means restricted to YECs. Many oppose reductionism. Arthur Peacocke, the British biochemist and clergyman, opposed reductionism for decades from a liberal theology and founded the *Society of Ordained Scientists* in 1986 to facilitate this. John Polkinghorne, Donald Mackay, and many evangelical members of the CIS and ASA also oppose Reductionism. However YEC is extreme anti-reductionism.

When these arguments are put before an evangelical audience the appeal of YEC becomes compelling. Anyone who challenges them, and “scientific arguments” for YEC are compromising the Gospel. That is why such beliefs are so tenacious. The argument is more over deeply held religious convictions than intellectual ones.

Some question that the motivation of YEC is religious. Charles Israel believes it to be the desire to control the education of children, and argues this especially for Austin Peay, Governor of Tennessee and Jennings Bryan in the 1920s (Peay, 2004). Israel gives several quotes from Peay, Bryan, and others to support this. I would argue that the primary motivation of all Bryan’s beliefs stemmed from his faith, which inspired his politics. Recent anti-evolutionism is often bound up with the Religious Right and family values, but one must ask whether the motivation is the control of education or religious belief. All YECs I know of are so because of religious rather than political or educational convictions. It may be hard to understand their outlook if one is not “religious” and thus one may look for a non-religious explanation in line with the secular outlook of Western academic culture. But this often fails to understand their motivation.

One must grasp the religious and moral appeal of YEC in order to understand the movement and how it has developed. The scientific arguments are beyond the wit of most people, but the average evangelical will understand why the blood of Christ washes away his sin, even if he cannot evaluate the arguments for and against the decay of the speed of light. Now for the genesis of YEC.

THE GENESIS FLOOD: THE BOOK THAT STARTED IT ALL

Though there had been antecedents (see Chapters 4, 5, and 6) the most significant event was the publication of *The Genesis Flood* by Henry Morris and John Whitcomb in 1961. Morris was a hydraulic engineer, who was head of civil engineering at Virginia Polytechnic Institute from 1957, and wrote several engineering textbooks. In 1970 he joined Tim LaHaye at San Diego to become co-founder of Christian Heritage College. (LaHaye is a well-known evangelist and the author of the best-selling *Left Behind* series of novels based on his Dispensationalist interpretation of the Rapture.) From 1970 to 1995 he was President of the Institute for Creation Research.

Since the 1940s he had been advocating a recent creation and worldwide flood and his theology was strongly inerrantist and dispensationalist. John C. Whitcomb was Old Testament professor at Grace Theological Seminary in Indiana. *The Genesis Flood* is without question the most important Creationist work ever written and its influence on evangelical thinking in science cannot be over-estimated.

THE ORIGINS OF THE GENESIS FLOOD

Its genesis was due to Morris meeting Whitcomb at an ASA meeting in 1953 and sharing his concern over Ramm's book *The Christian View of Science and Scripture*. They began to collaborate in 1957, but soon Morris's chapters outnumbered Whitcomb's. Whitcomb provided the theology and Morris the "science," which was a largely unacknowledged adaptation of McCready Price's Flood Geology. Morris argued that all sedimentary strata were deposited during the Flood, the Geologic Column was based on a circular argument, radiometric dating was flawed, etc. Neither his criticisms of "evolutionary science" nor his alternative science models have gained acceptance by mainstream scientists. *The Genesis Flood* has formed the basis of all subsequent YEC thinking. The book had a checkered pre-publication history but finally Presbyterian and Reformed published it in February 1961, due to the recommendation of Rousas Rushdoony, which was unusual for a book by a dispensationalist Baptist. Most criticisms have centered on scientific aspects and often Whitcomb and Morris have been accused of misquotation. Theological criticisms from an evangelical theology are less common because of Morris and Whitcomb's commitment to Evangelicalism.

RECEPTION

The Genesis Flood was ignored by the secular world for two decades. *Christianity Today* selected it as one its "Choice Evangelical Books of 1961," despite a negative review by Wheaton geologist, Donald Boardman. The ASA procrastinated for three years, possibly to avoid controversy. Finally in 1964 the ASA published two hostile reviews in their journal by Ault and Frank Roberts, only to be rebutted by Whitcomb and Morris. Arguments continued until a devastating review in 1969 by Prof. J. R. van de Fliert (van de Fliert, 1969), the evangelical geology professor at the Free University, Amsterdam. As well as pointing out the geological misunderstandings, he also criticized the authors' method of citation. He wrote, "To lift a certain sentence out of a publication, and to use it for something quite different than the original author meant, is scientifically dishonest." This is not the last time that YECs have been accused of misrepresentation in

their citation, as examples are legion in YEC literature. Not all would agree with Van de Fliert, who continued, "I realize that the authors of *The Genesis Flood* did not intend to do this. . . ." None of these criticisms stemmed the YEC tide.

The Evangelical Press published *The Genesis Flood* in Britain in 1968. A. N. Triton (a.k.a. O. R. Barclay) courteously damned the book in the *Christian Graduate* in 1969 for the RSCF. As an aside, I read this review in a caravan in the Namib Desert while carrying out geological exploration for a mining company. I could not take the book seriously, but a year later had to change my tune when I was studying under Francis Schaeffer at L'Abri in Switzerland. When I began to read it, I had a horrible suspicion that it might be right.

EARLY DEVELOPMENTS OF YOUNG EARTH CREATIONISM 1961–1981

The development of YEC up to 2005 has been chronicled by Numbers (1991, 2006) and by Morris (1984). YEC has grown rapidly in America and beyond, including in former Communist lands. It is the dominant opinion of evangelicals in South America, Africa, and India, if only by default. YEC grew linearly in the 1960s, and thereafter exponentially.

Whereas before the war YEC societies sprang up and withered away, many of the societies following *The Genesis Flood* have survived and new ones are still springing up. The first was the *Creation Research Society* in 1963. To ensure credibility to be a member one had to have an M.Sc. degree or equivalent. The society published the *Creation Research Society Quarterly*, the flagship YEC journal and worth consulting to understand YEC science. Creationist societies now exist in every continent. Most are in the United States and a Web search will indicate the plethora.

At the same time the YEC publicity machine was cranking up to full speed. YECs organized conferences and speaking engagements. Some, especially Whitcomb, sought to persuade evangelical colleges to rewrite their statements of faith to include YEC views. Before this time most colleges allowed staff to accept an old earth, but not evolution, which was part of the prewar fundamentalist inheritance. Several creation research institutes were founded in the seventies. Foremost was the *Institute of Creation Research* (ICR) in San Diego. In 1970 Morris helped Tim LaHaye (b1926) found a Bible college and creation research center at San Diego. Initially they partnered with Nell and Kelly Segraves, but in 1972 the Segraves took their Creation Science Research Center across town. After this Morris started the Institute of Creation Research and hired Duane Gish, a biochemist, Thomas Barnes, and Harold Slusher, both physicists with honorary doctorates of dubious worth. The intent was to focus on research,

writing, and speaking, but not political action. In 1979 Steven Austin, a geologist, joined the staff and from there it grew.

Though Morris wished to major on education and research, he also wished to challenge the teaching of evolution. Their strategy was the *Two Model Approach*, in which they argued that students should be taught the two models of Creationism and Evolutionism, first discussed in the September 1971 issue of the *Creation Research Quarterly*. They argued that there are only two alternatives; Creation by God in six days, and Godless Evolution by chance and mutation. The strength of the two-model approach was that it excluded the middle ground, which most Christians occupied, which was a good debating tactic as it lured evangelicals into YEC. This challenge to science education was given political clout, first by Wendell Bird (b1954). Bird studied law at Yale and from there joined Morris at ICR for two years where he gave the Two Model approach for equal time a sounder legal basis. Within a few years it was adopted by the Arkansas and Louisiana statutes, and considered elsewhere. The two-model approach failed and another tactic had to be adopted.

In early 1981 the ICR announced graduate degrees in various creation sciences. Initially they offered M.S. courses in biology, geology, geophysics, and science education. Several geophysics graduates went into the oil industry and gradually unlearned all they had been taught. The history of the ICR is one of changing personnel and conflict. In the late 80s the school was being investigated by the California State Department of Education and in 1990 had its license to teach removed only to have it returned in 1992. A further problem was to obtain accreditation as standard accreditation was denied to them. An alternative system was devised and ICR is now accredited by TRACS, which supports YEC and gave ICR another five years accreditation in January 2005.

CONSOLIDATION IN THE 80s

The 1980s were the most significant decade for YEC. In 1980, the profile of YEC was raised by attempts to introduce laws on the teaching of creationism in several states. The action in Arkansas in 1981 made YEC well-known throughout the western world and goaded the scientific community into action. In early 1981 Senator James Holsted introduced an act in the Arkansas Senate arguing for the teaching of both "evolution" and "creationism," following the two-model approach. Governor White, who had earlier ousted Bill Clinton, signed it into law on March 19, 1981. A re-run of the Scopes Trial was inevitable. Two months later the ACLU filed a lawsuit and the trial was held from 7 to 17 December.

At the trial both sides produced expert witnesses. Most significant for "evolution" was the philosopher of science Michael Ruse, who convinced

Judge Overton that “Creation Science” failed to show “the essential characteristics of science.” Witnesses included the scientists Stephen Gould and Brent Dalrymple and clergy from several denominations including Southern Baptists. “Creationist” witnesses included the cosmologist Chandra Wickramasinghe, who stated that no scientist could accept that the age of the universe was less than a million years, and R. V. Gentry of polonium halo fame. The main question turned on whether “Creation Science” was science. Judge Overton in his thirty-eight-page ruling on January 5, 1982, declaimed that creation science was not science but religious doctrine and so the bill was overturned.

This seemed to be a resounding defeat for YEC, but even as Judge Overton gave his verdict, doubts were raised. The philosopher Larry Laudan (b1941) charged Ruse with failing to recognize the disagreements between scientists over scientific boundaries. Neither the euphoria nor the despondency lasted. The trial also drew in more evangelicals in the United States and abroad. Perhaps they took heart from Ronald Reagan, who during the 1980 election said that, “if evolution is taught in public schools, creation should also be taught.” It may be significant that the atheistic evolutionism of Richard Dawkins and others gained momentum in the early 80s. In an invert way they also adopted a two-model approach. The Arkansas judgment proved a minor setback. During 1982 the commitment of YECs was unabated. State after state in the United States had statutes put forward for the teaching of equal time for “Creationism” and “Evolution” but these were never passed. Even so the result was frequently close.

ICR continued to grow in the 80s, though Slusher left abruptly at that time. Ken Ham, an Australian science teacher, began his thirteen-year association with ICR in 1981. In 1984 he returned on a speaking tour and then in 1986 he came to work for *Films for Christ* and in 1987 with Paul Taylor of *Films for Christ* produced *The Genesis Solution*.

GROWTH IN THE 90s

The most significant development of the nineties was the formation of *Answers in Genesis—USA* (AIG) in 1993. The founder was Ken Ham, who before he left his native Australia was involved first with the Creation Research, working with John MacKay until they fell out, and then with the original AIG in Australia. Thus at the end of 1993 Ham left ICR amicably to set up AIG-USA and in early 1994 headquarters were set up in Florence, KY. Their work rapidly expanded and they shared resources with ICR. AIG is a more popular and aggressive version of ICR, and has a higher profile. They carry out a varied ministry with lecture tours and publications. AIG takes no prisoners and many of their publications and Web articles make personal attacks on others; Ron Numbers is described as an apostate, Davis

Young as “supposedly evangelical” and all evangelicals who espouse the vast age of the earth or universe, whether an anti-evolutionist like Hugh Ross, or typically ASA/CIS evolutionists, are condemned as “compromisers.” This is developed at length in Sarfati’s book *Refuting Compromise* (Sarfati, 2004), though since then Sarfati left AIG in acrimony.

AIG now has branches in many countries including New Zealand, South Africa, and Canada, with a British group based in Leicester. Elsewhere I have discussed the history of science promulgated by Terry Mortenson, who obtained a Ph.D. at the University of Coventry in 1996. The British director is Monty White, with a Ph.D. in chemistry, who after twenty years in university administration joined AIG-UK in 2000.

AIG has a vast, well-produced Web site. Much is well-written, well-argued, and superficially plausible. Many of the articles have been reproduced from their journals *Creation* and *Technical Journal* (TJ), which have now reverted to *Creation Ministries International* with much acrimony. The articles cover the whole range of subjects of interest to a YEC and are excellent in giving a contemporary picture of YEC arguments. Lecturers from AIG have a heavy itinerary and give lectures in the United States, Britain, and the Antipodes, as well as Creationist conferences. They seek to influence both the churches and evangelical seminaries, and to further this, list those colleges and seminaries, which either teach or fail to teach “creation.”

This detail on AIG may seem excessive, but at present they are the most significant and effective YEC group, with a worldwide influence. They also work closely with ICR. As I write today the YEC movement is so large and has a presence in almost every country in the world, so that it is not possible to give a brief survey. In North America there are vast numbers of YEC organizations, not all of which have the professionalism of AIG and ICR. These are proliferating throughout the world and have a considerable impact. Rather than give a list of organizations it is better to understand a few. In the United States that means ICR and AIG, with AIG and Creation Ministries being the first port of call in much of the world. In Britain the two main groups are Biblical Creation Society and Creation Science Movement. Beyond that the best thing to do is to simply search the Web and see what turns up. The number of organizations and sites and reflect the fact that more and more evangelicals are coming to think that YEC is Christian orthodoxy.

PROSPECT FOR THE NOUGHTIES AND TENS

After Arkansas in 1981 many thought that the demise of YEC was imminent, yet YEC has continued to grow. It has made inroads into main-line denominations like the Anglicans and Methodists. There are several

reasons for this and is partly due to the growing proportion of evangelicals within those churches. Within the Church of England, which is not as liberal as its American counterpart, between 5 and 10 percent of the clergy are YEC, compared to almost zero between 1860 and 1970. In March 2005 Sir John Polkinghorne debated John MacKay of *Creation Research* in Liverpool Cathedral. According to reports from *Creation Research*, MacKay won and was thanked by several Anglican clergy. According to Creation research's e-mail newsletter *Evidence News*, this was "A great victory for Christianity on the subject 'Is Evolution Compatible with the Christian Faith?'" (*Evidence News* 12/07). From this report one would not have realized that Polkinghorne has conservative theological views, not far removed from many evangelicals in *Christians in Science*. The Dean of the cathedral personally gave me a different perspective. As the majority of growth among Christians is of evangelicals that means that more will be YEC. There are no signs of any concerted opposition or reaction to YEC from mainstream churches. Within the growing Third World churches the evangelicals are very susceptible to YEC and in 2004 Archbishop Peter Akinola of the Anglican Church of Nigeria was very outspoken against evolution. However at present this is not a dominant theme, possibly because they are more concerned about the gay issue, financial insolvency, or other issues. Trainee pastors in the Anglican churches of East Africa tend to be YEC. There has been no survey of how far YEC is held in third-world churches but the anecdotal information that I have acquired indicates that it is very widely held. Meanwhile in the formerly Anglo-Saxon countries YEC continues to grow, even though major splits occur between YECs as in the AIG, when the Australians hived off to form Christian Ministries International (CMI) with great acrimony in 2005. In May 2007 CMI has filed a lawsuit against AIG and Ken Ham. Jim Lippard has related all the problems that date back to 1987, when John Mackay was ousted from AIG and set up his own organization. It makes sorry reading (Lippard, 2007).

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THE WORLDWIDE EXTENT OF YOUNG EARTH CREATIONISM

Very often YEC is portrayed as a dominantly American phenomenon. Of course, it started in the United States. with *The Genesis Flood* and spread first through the English-speaking world and is now highly significant in Britain, Canada, and Australia. It is also now the dominant understanding of "Origins" among Christians in Latin America, Africa, and Asia and has a wide appeal in the old Soviet-bloc nations and among the growing numbers of evangelicals in Western Europe. It appeals also to some Roman Catholics and Orthodox Christian. Conservative Muslims also hold it. Consequently it is a worldwide phenomenon and not restricted to small-town America.

YEC SCIENTISTS

Early “Creationists,” like McCready Price and Rimmer, had minimal scientific education, but today’s YECs are well-qualified. In North America, Britain, Australia, and New Zealand there are now many YEC Ph.Ds, supporting the claim that YEC is a new scientific “paradigm.” However not all YEC doctorates are properly accredited degrees. Examples include Thomas Barnes, Harold Slusher, Edward Bliss, Carl Baugh, and John Blanchard, who seem to have acquired their degrees from “diploma mills” (www.talkorigins.org).

YEC scientists often have professional positions in industry and education. Many are engineers or computer scientists. There are far fewer biologists and geologists, who are mostly employed in evangelical or Adventist colleges. The book *In Six Days; Why 50 Scientists Choose to Believe in Creation* (Ashton, 1999) gives a useful snapshot of qualified YEC scientists. Each gives either a personal account or a justification for YEC. There is a good representation of most sciences. None of the geologists work for secular concerns, though Snelling did briefly.

In most English-speaking countries there are YEC scientists employed in universities or research institutions. In Britain there are at least ten full professors in physical science or medicine, but no biologists and geologists. It is, of course, impossible for a YEC to teach conventional geology. The two most well-known geologists are Kurt Wise and Steve Austin, both with Ph.Ds. Wise studied under Stephen Gould and used to teach at the YEC Bryan College at Dayton and Austin, who has a doctorate from Penn State on the deposition of coal in the Pennsylvanian, works for the Institute of Creation Research, as does John Morris, son of Henry, who has a Ph.D. in engineering geology, and the Australian Dr. Andrew Snelling. The reason is simple. Engineering, the physical sciences, medicine, and a high proportion of biology can be studied and practiced without any reference to the vast age of the earth. However geology is impossible without vast ages.

In 2003 when Paul Lauterbur and Peter Mansfield were awarded the Nobel Prize for Medicine for MRI (magnetic resonance imaging), many YECs thought that Dr. Raymond Damadian was denied a share of the prize, because of his YEC views. Damadian had first suggested that MRI could be used to differentiate between healthy and cancerous tissue in an article in *Science* in 1971. In 1972 he filed a patent on MRI scanning and built an MRI scanner making the first image of the skull of a live person in 1977. In their book James Mattson and Merrill Simon (Mattson and Simon, 1996, Chapter 8) stress that his work was fundamental to MRI. The history is not without controversy, especially over Damadian’s patents. As three scientists can receive a Nobel Prize, both YEC and secular commentators,

including Ruse, have suggested that his YEC views were the reason for being overlooked. The exact reasons are unknown and the deliberations of the Nobel Prize committee are not revealed for 50 years. It is difficult not to come to the conclusion that Damadian's YEC views were a factor in his missing the Nobel Prize. Whatever the rights and wrongs of the Damadian affair, it has been used to support the YEC claim that there is a culture war.

Though YEC scientists form less than one percent of all scientists, they show that some scientists have affiliated themselves to YEC. Many YEC scientists can boast competent research publications, but no YEC scientist has made any significant contribution in geology or biology. Even though the majority is from engineering, computer science, and physical science, the numbers should make all pause for thought. It is not possible to dismiss YECs as pseudoscientists as did Martin Gardner in his *Fads and Fallacies in the Name of Science* (Gardner, 1957).

ROOTS OF CREATIONISM

The common perception is that YEC is old orthodoxy revived, which opposed every advance of science. Critics of YEC, as does Philip Kitcher in *Abusing Science* (Kitcher, 1982), often portray YEC as a throw-back to Bishop Samuel Wilberforce and Archbishop Ussher. This misunderstands the historical situation (see Chapter 3) and stems from the Conflict Thesis of Science and Religion set forth by Andrew Dickson White and others in the 1890s.

The prevalent YEC understanding of their historical roots is that they go back to the founding fathers of science, who believed in God and rejected the atheistic ideas which were introduced into science during the Enlightenment (Mortenson, 2004). Most Christians accepted a science, which was young earth until non-Christians like James Hutton and other Enlightenment figures began to suggest Deep Time in about 1780 and undermine biblical teaching. Henry Morris presents this in a popular book *Men of Science, Men of God* (Morris, 1982) and lists all the sciences "founded" by "men of God." Superficially this is plausible as these scientists were theists, but few would be welcome in YEC circles today!

Previous chapters make it clear that (educated) Christians never dogmatically held to a six-day creation, though many, especially during the Reformation, favored creation in about 4000 BC. As Deep Time became apparent in the late eighteenth century it was accepted by most Christians, including evangelicals (Roberts, 2007), so that by the 1820s only a few, the anti-geologists described in Chapter 4, tried to insist on a "literal creation" and by mid-century had almost disappeared except for Seventh Day Adventists, Mid-western Lutherans, and a few others.

Present day YEC began with *The Genesis Flood* in 1961, which developed the ideas of McCready Price, a Seventh Day Adventist. This is expounded by Ronald Numbers in *The Creationists* (Numbers, 1991, 2006). Thus YEC *does not* have significant historical roots in orthodoxy whether Protestant or Catholic, nor Pre-Reformation or Early Church. Its roots are to be found in the Seventh Day Adventist teaching of Ellen White and the Fundamentalist reaction to all things Modernist and Evolutionary in the early twentieth century.

EVALUATION OF YOUNG EARTH CREATIONIST CLAIMS

At the beginning of the chapter I gave a brief summary of YEC beliefs. To assess each YEC argument would require expertise in every science from astronomy to zoology. Much ink has been spilt in refutation of YEC science. The most useful Web site is <http://www.talkorigins.org> but I question some of the religious and sociological judgments. Another useful anti-creationist site is that of the National Council for Science Education (NCSE) <http://www.ncseweb.org>. Of course, the AIG www.answersingenesis.org or ICR sites www.icr.org “refute” these (see Pennock and Ruse, 2007). The better YEC publications are well produced with many scientific references. They invariably find suitable quotations to support their arguments. Often YECs can cite a scientist who doubts an aspect of “evolution.” That is not difficult as scientists robustly disagree.

Perhaps the most serious and persistent charge against YEC publications is that many quotations are taken out of context. (See the review of TGF by van de Fliert cited earlier.) It is often accompanied by accusations of lying. Thus on the talkorigins Web site, <http://www.talkorigins.org>, documents many examples, which in turn are denied. A commonly cited example is lavas from Hawaii, which were “dated” in the 60s. “In 1968 scientists applied radiometric dating to some rocks which *known* to be less than 170 years old. [1801 eruption on Hualalai.] The radioactive ages determined for those 170 year-old rocks ranged from 160 million to 3 billion years” (Ackermann, 1991, p. 81). Ackermann then commented, “Obviously, something is wrong with this method.” However if one reads the paper cited (Funkhouser and Naughton, 1968, pp. 4601–4607) a very different picture emerges. The material dated were ultramafic *inclusions* in the lava of mantle material and thus not lava. The geochronologist Brent Dalrymple (a witness at Arkansas in 1981) made this clear in 1982, but the Hualalai example is still cited today; www.answersingenesis.org/creation/v27/i2/cause.asp. During these twenty-five years Dalrymple’s criticisms were simply ignored. This is one of many examples. On a personal note, this type of misrepresentation in all the YEC books I read in 1971 convinced me of the falsity of YEC.

Because of this misrepresentation many critics of YEC have naively assumed that if it were exposed, then proponents of YEC would simply be forced to change. That has not been the case as the arguments are rarely corrected. One is faced with a paradox. Here are a group of Christians who are emphatic that they stand for family values and the Ten Commandments, who in their writings habitually misquote. Abortion, adultery, and homosexuality are out, yet critics assert that they break the Ninth Commandment (thou shalt not bear false witness). This is incongruous. I speak both of proponents and followers. No one seems to have made sense of this and questions are asked whether YECs activists are deliberately dishonest or simply deluded. Yet they often seem very sane, balanced, and upright people. I offer no answer.

ANTICREATIONISM

As “creationism” whether YEC or ID has mushroomed over the last forty years, so have the critics of Creationism. Critics vary from evangelical to scientific atheist. The content of criticism varies from gently critical to the militantly strident and, sadly, accuracy also varies. Until the 70s, YEC was ignored, except by a few scientific evangelicals who attempted to give a restrained critique of *The Genesis Flood*. Probably the first outside the evangelical fold to air concerns was William Mayer, who devoted the November 1972 issue of the *Biological Sciences Curriculum Study Newsletter* to YEC. Slowly during the seventies, many began to realize that YEC was an issue, but did not know how to deal with it. Many regarded YECs as hill-billies, who could be dismissed with ease. That was not the case. As the YECs consolidated their position, some academics began to address the issue, which was coming up in school boards, as did Dorothy Nelkin in *Science Textbook Controversies and the Politics of Equal Time* (Nelkin, 1977).

The first major works of refutation were Phillip Kitcher’s *Abusing Science* and Niles Eldredge’s *The Monkey Business* both published in 1982 in the wake of the Arkansas trial. Kitcher was a professor of philosophy with a zoological background and Eldredge, cofounder with Gould of Punctuated Equilibrium. Along with scientific rebuttals Kitcher sought to explain the motives of YEC and brought out the “moral” appeal on how Darwinism encouraged the whole gamut of evils from communism to Nazism. Kitcher specifically avoids religion in the wider context, but assumes (wrongly) that today’s YEC is a continuation of the Darwin controversy of the 1860s and Scopes. To draw a parallel between YEC and Samuel Wilberforce overlooks the fact that the good bishop was no young earther. Eldredge wrongly considers Wilberforce, Bryan and the early Fundamentalists as forbears of YEC. By failing to see the difference between late twentieth-century YEC and the creationist Christians of the nineteenth century, these

authors reinforce the belief that orthodox Christianity before the rise of geology was dominantly literalist. Even two decades after these two books, this argument is still common, despite the careful scholarship of historians like Rudwick, Ruse, Numbers, Livingstone, and Larson. A recent example is McCalla's *The Creationist Debate: The Encounter between the Bible and the Modern Mind* (McCalla, 2006), which attempts to put the *Creationist Debate* into its historical context, but has bought into the conflict thesis of science and religion. The volume has many flaws of both of interpretation and factuality. He claims (p. 139) that Gosse wrote *Omphalos* in 1857 to counter *The Origin of Species* written in 1859—a clear case of prochronism! (His grasp of science is very poor as is shown by his confusion on radiometric age-dating claiming it began with Carbon 14 dating in 1950 whereas it began with Uranium-Lead in 1907 (McCalla, 2006, p. 137).) For interpretation he reckons that the essence of a liberal Christian is to accept geological time and its implications for Genesis (pp. 83, 118). He is unaware that Adam Sedgwick was an evangelical.

Some critics of YEC also present the choice of biblical understanding between a literal Genesis written by Moses and a mythological Genesis compiled from the sources J, E, and P in sixth-century Babylon, as in John Moore's *From Genesis to Genetics* (Moore, 2002, pp. 20–53). By focusing on extremes of interpretation, polarization is encouraged. Little mention is made of evangelical scholars like Wenham, Blocher, Lucas, and Walton, who eschew literalism.

Since Arkansas many evaluations of YEC have been published. Some deal purely with scientific issues and others attempt to put YEC into its social and religious context. There is little difference between secular and evangelical critiques of YEC science. Religious and sociological critiques are far more contentious. Some lump all “conservative” Christianity with YEC, and overlook that many evangelicals oppose YEC. Where secular critics fail to understand either Evangelicalism or Christianity, then, no matter how good their scientific critique is, their arguments often descend to a harangue against religion in general. An example of this is Richard Dawkins who dismisses any kind of religious belief as mindless and viral, and regard liberal forms of Christianity as “contrary to evidence” as YEC.

As YEC has grown so have opposition groups. These vary from individuals, like Dick Fischer (an evangelical), to well-organized groups. In the United States the most significant anticreationist organization is the National Center for Science Education (NCSE) based in Oakland, California headed by Eugenie Scott. The NCSE produces an immense literature of a high standard on very aspect of YEC and ID and has a useful and wide-ranging Web site. Though NCSE is often criticized for being atheistic, its policy is to be religiously neutral and it has the support of many Christians for example Keith and Ken Miller, an evangelical and Roman

Catholic scientist respectively. They also employ a staff member to deal with religious issues. It carefully avoids the strident atheism often associated with anticreationism.

In contrast to the careful and balanced approach of the NCSE, many anticreationists allow their opposition to creationism to give vent to stridency and frequently have a wrong understanding of the past and present relationship of evangelicals to science. This can be seen on the Web blog *The Panda's Thumb*, where some contributors show little discernment, in contrast to contributors from the NCSE, who combine pungency with precision.

THE SCIENCE OF YEC

The tendency to dismiss YEC as *pseudoscience* or *antiscience* overlooks the fact that YEC emerged from a scientific culture. McCready Price and Morris were products of a technological education, which they revered. YECs use an extreme version that science is empirical and experimental to support a literalistic faith. This goes beyond the witticism of Ernest Rutherford (1871–1937), and Nobel Prize winner in 1908, who said, “All science is either physics or stamp collecting.” Like many aphorisms it is a half-truth, but it explains why experiment is thought to be the essence of science. This is reinforced as many studies on the philosophy of science focus on empirical science and ignore historical science. Historical science includes geology and archeology which deal with unique past events not open to empirical test. However that does not mean that historical science cannot be tested rigorously. This extreme experimentalism is reinforced as many, especially males, tend to have studied more physical science than geology or biology. Also, the study of rock strata and their relationships is observational rather than experimental, but that does not mean that it lacks scientific rigor. This can result in the hierarchy of sciences with physics at the top and the “soft” social sciences at the bottom and geology and biology somewhere in-between.

In *Scientific Creationism* Henry Morris develops this and questions the reliability of any historical science because past events are unrepeatable. He states, “At the same time, it must be emphasized that it is impossible to *prove* scientifically any particular concept of origins to be true. This is obvious from the fact that the essence of the scientific method is experimental observation and repeatability” (Morris, 1974, p. 4) He then develops his two-model approach. To him neither is provable as both are “faith positions” and dependent either on the Bible or materialism. As the Bible is true so must be “creation,” that is creation in six days. Thus briefly Morris presents the case for rejecting all geological and cosmological arguments for deep time. Thirty years on Morris’s argument is still held. On a popular

level Ken Ham developed this with his question, “were you there?” about anything relating to the deep past, which is recommended for schoolchildren, claiming biblical support from Job 38 vs 4, “Where were you when I laid the foundation of the earth?” Similarly, John Morris of ICR says that not once has a rock “talked to him” and explained its history. The YEC extreme experimentalism also questions whether historical sciences can be science, as nothing in historical science can be tested experimentally. In a sense, that is true. However, rather than recognizing the difference between empirical and historical science YECs aim to show that historical science cannot demonstrate anything about the past. This would also nullify historical arguments for the existence of Jesus Christ!

Norman Geisler and Kerby Anderson tried to resolve the problem of “Creation and Evolution” in their book *Origin Science, a Proposal for the Creation-Evolution controversy* (Geisler and Anderson, 1987). Geisler was a witness at the Arkansas trial in 1981 and a well-respected conservative theologian at Dallas Theological Seminary. Following the suggestions of Bradley et al. (1984, p. 204) that a science about past singularities should be termed *origin science*, the authors tried to resolve the controversy by distinguishing between *operational* and *origin science*, and “If both evolution and creation honor these principles, then proponents of each can at least engage in meaningful discussion” (Blurb to book). *Origin Science* deals with the unrepeatable events of the past and *operational science* deals with repeatable present events. This goes beyond the common distinction of empirical and historical science in that there is a possibility of divine action in *origin Science*. They regard geological science as dealing with historical regularities, but *singularities* can be explained by special creation or macroevolution and that scientific evidence can show “that there is a constant conjunction between a primary intelligent cause and a certain kind of event” (p. 17) which points to a supernatural cause. The authors are critical of the development of a “modern naturalistic approach” in astronomy (Descartes, Buffon, and Laplace) and geology (Lyell) and biology (Darwin). They overstate their case as they fail to realize how close the naturalistic geology of Lyell and much of Darwin’s biology (and geology) is to that of their “theistic” counterparts like Sedgwick (Roberts, 2004, pp. 280–285) and others mentioned in Chapter 4. Their conclusion is that *origin science*, which allows for divine intervention is better than today’s *naturalistic historical science*.

This and *The Origin of Life* (Thaxton, Bradley, and Olsen, 1984) has provided much of the basis for Intelligent Design (ID), with its attack on *Naturalism*. The distinction of *operational* and *origin science* is now well established with YECs and ID, with *origin science* now including *all* historical science. However despite the avowal of geological time by Geisler and Thaxton, *origin science* is often used to question geological time. This is

combined with a rejection of conventional geology as *uniformitarian* and *naturalistic* and based on the antitheistic beliefs of Lyell (in fact a theist) and Hutton, who both had roots in the Enlightenment. The combination of *origin* science and anti-naturalism in its various guises, whether YEC or ID, provides the basis for a powerful rhetorical attack on geology and evolutionary biology. First, all “uniformitarian” geology can be charged with being naturalistic and secondly that as geological arguments for great age are *historical*, they cannot be verified *empirically*. Thus deep time or the short timescale of YEC are equally valid and both ultimately *faith-positions*, based on naturalism and theism respectively. It can also be used to dismiss all geology, by claiming that as an evolutionary *origin science* its conclusions are entirely dependent on its presuppositions, without defining what those are as does the AIG speaker Paul Taylor (Taylor, 2006). Opponents of evolution used this during the campaigns of 2002/2003 in Ohio, when SEAO published the following statement.

Historical science. Most sciences, including chemistry and physics, are empirical (or experimental) in nature; theories can be tested by experiments in the laboratory and/or by observations of the world. Some disciplines, like origins science, are historical in nature; that is, they attempt to explain events and processes that have already taken place in the distant past. Theories in historical sciences cannot be verified experimentally, so the explanations are always tentative. Biological evolution (like creation and design) cannot be proven to be either true or false. The historical nature of evolution/design theory should be explained in the standards.

Had that passed into the statutes in Ohio it would have been impossible for conventional scientists to teach either geology or biology without breaking the law. At present, this distinction of *operational* and *origin* science is widely used in both ID and YEC circles, including on the teaching of science. Many find it plausible and so; if “creation” and “evolution” are equally valid “faith” positions, why not teach both?

Uniformitarianism has long been criticized by YEC writers. In *The Genesis Flood* Morris criticises Uniformitarianism at length, and this is now a basic tenet of YEC. When Morris wrote the book in the late 1950s, there had been little serious study of the history of geology, except that by the evangelical Hooykaas (1957) and the then *received* account of the birth of geology was that the founders, notably Hutton and Lyell, struggled heroically against the constraints of the church. Historians of geology have overthrown this “heroic” understanding of the history of geology during the last three decades (Rudwick, 2004). Hutton and Lyell were only two of many geologists, rather than the founders of geology with an anti-Christian bent. It is, of course, impossible to do any geology without a basic assumption of the uniformity of past physical processes. Otherwise one

would simply invent changes to physical processes in the past to explain the unexplainable.

Steve Austin greatly misuses Uniformitarianism in his comparison of the Grand Canyon and gorges carved out Mt. St. Helens after the 1980 eruption. Mudflows carved out thirty meters gorges in soft volcanics in one day. YECs falsely claim that uniformitarians argue that this would have needed millions of years. They then claimed that the Grand Canyon could be carved out rapidly. This argument is found in the AIG tract *The Voice of the Volcano* and might convince the uninformed, but it fails to recognize that unconsolidated volcanic ashes can be eroded rapidly but not the hardened rock of the Grand Canyon. This can be shown by turning a garden hose on a pile of loose sand and then on the brickwork of the house.

On the philosophy of science YECs make use of Thomas Kuhn's *The Structure of Scientific Revolution*. Kuhn's thesis of paradigm shifts in scientific theories is well known, but is not the last word. By using Kuhn's Paradigm Shifts writers try to demonstrate that because of the new YEC scientific paradigm, the old evolutionary paradigm is crumbling and needs to be replaced by a YEC paradigm. Throughout his book *Creation and Change, Genesis 1.1–2.4 in the light of changing scientific paradigm* Kelly argues that the new evidence (for a young earth) is crying out for a paradigm shift. There is an incongruity in the YEC use of Kuhn as he reckoned paradigms were changed because of scientific consensus rather than a closer approximation to scientific truth. Kuhn rejected realism in science, whereas YECs (and Dawkins) are naïve realists and tend to absolutize what they consider true science.

THE APPEAL TO CRITICAL THINKING OR "TEACHING THE CONTROVERSY"

By now it should be clear that YECs are wellinformed and that, when it comes to evolution, students must be taught to think critically. This argument is used on both sides of the Atlantic and is very appealing educationally.

However that is not what Creationists understand by "teaching the controversy" about evolution. This came to the fore in 2002 during the campaign to introduce ID into Ohio schools. Here, as subsequently in Kansas and Dover, Pennsylvania, in 2005, there was an alliance of YEC and ID. The argument is beguiling and presented in such a way that only those with closed minds could oppose it, as it "appeals to popular values of fairness, openness and equality of opportunity. It thus plays well the public" (Scott and Branch, 2003) Hence students must be given both sides and think for themselves. As Stephen Meyer put it in the *Cinninnati*

Enquirer in March 2003, “When two groups of experts disagree about a controversial subject . . . students should learn about both perspectives . . .” Educators call this “teaching the controversy.” However it was a ploy to teach ID. Proponents of the bills took this up and their depositions emphasized the need for “teaching the controversy”: This was forcefully made in the publications of Science Excellence for All Ohioans (SEAO), who were behind the bill.

Teaching the controversy. Dr. Stephen Meyer, at the Panel Presentation in Columbus on March 11, proposed that the standards should “mandate mastery of the scientific evidence and arguments *for* and *against* Darwinism. Students should know the scientific case for modern Darwinism and contemporary scientific critiques of the theory as well.” Dr. Meyer also proposed that the standards should “enact no definition of science that would prevent teachers from discussing alternative evidence-based theories” about biological origins. The standards should thus “teach the controversy” surrounding the evidence for evolution and the definition of science.

We are not opposed to the teaching of evolution; we just want origins science to be presented objectively—that is, in a fair, reasonable, and unbiased manner. This is not an “either/or” situation; there is room for both biological evolution and alternative theories in the standards. We believe that teachers and students should be permitted to (a) criticize the weaker aspects of evolutionary theory, and (b) discuss alternative theories that have been proposed.

This was rejected in Ohio in 2003, but the tactic has continued to be used, including in the recent British attempt of *Truthinscience*. The argument is seductive, but presumes that the handful of YECs and Intelligent Designers should be considered as expert as the myriads who aren’t. Superficially this is an extremely good educational method as by being given the arguments for and against, students will think critically. *But*, this depends on the validity of that evidence. Thus, for example take the age of the earth. For over half a century geologists state, from radiometric age dating that the earth is 4.6 billion years old. Hopefully they will have been taught how geologists came to this figure, starting with notions of great antiquity in the 1770s through to the development of radiometric age dating since 1905. However to “teach the controversy,” they will be taught all the YEC arguments against an old earth and for a young earth, as if those were as valid as conventional science. These are repeated in many YEC publications and include charges of false assumptions in radiometric age-dating, the cavalier discarding of “inconvenient” dates, the rapid deposition of strata and the carving of a canyon on Mt. St. Helens in 1980, etc. The impression is that these arguments are as geologically sound as any other. It is impossible to “think critically” if one is not equipped to understand the arguments in the first place or if one is fed inaccurate information.

The appeal to “teach the controversy” has been strongly opposed, as mainstream scientists stress that there is no controversy over the fact of evolution. Having said this, there is not unanimity among scientists as there are many controversial issues, but there is a consensus over the vast age of the earth as 4.6 billion years, the development of life over the last 4 billion years and many other matters. Much “creationist” literature claims to present both sides, but their presentation of evolution is inaccurate, as is the book *Icons of Evolution* by Jonathan Wells. Though he is a member of the Unification Church (Moonie), his book is widely recommended by evangelicals.

Strategy and Rhetoric

When YEC came to public notice in about 1970, many opponents assumed that any competent “evolutionary” scientist could debate a YEC and win. Several became croppers and continue to do so. Henry Morris points to Dr. Dolittle’s “devastating defeat in a formal debate with Dr. Gish at Liberty Baptist College . . . on October 12, 1981.” YECs are keen to debate with prominent evolutionists for good reason. The essence of these debates is slick tactics rather than a reasoned presentation. Further the audience may have decided the result beforehand, as often it is largely YEC, so that the “evolutionist” labors under a hostile audience. The winner is the one with the best sound bite, who buses in most supporters or who records the debate, as there are several examples of inaccurate recording of debates. The strategy for lectures has changed over time. Here I write of the British situation having attended YEC lectures by major speakers for the last twenty-five years. In the 80s there were often opportunities for verbal questions. That changed to written questions, which could be edited preventing any no contrary viewpoint. In recent years, no questions are allowed and the meetings close with prayer and an evangelistic challenge.

Though YECs present themselves as scientific, their strategy means that they target potential sympathizers. Hence their presentations are geared to evangelicals. Thus, though their presentations contain much “science” a high proportion is on the moral and theological appeal of YEC. First, they defend the inerrant Word of God. Secondly they make much of the “fact” that evolution is based on 4 billion years of death and suffering and that this is neither moral, nor in accord with the Fall, and thus acceptance of evolution or even geological time has a skittles effect on Christian belief. Thirdly, they often argue that evolution has detrimental effects on ethics from Nazi racism to promiscuity, homosexuality and abortion. The net effect is for a Christian to accept YEC, without considering the scientific aspects.

This is coupled with a “hermeneutic of suspicion” so that the hearer is already halfway to rejecting evolution and thus halfway to becoming YEC. I have observed this to be highly effective among my colleagues in the Anglican ministry. The Church of England is not the most conservative church, yet I frequently find that non-fundamentalist colleagues doubt evolution and/or geological time because doubts have been persistently pressed on them and they do not have the scientific expertise to evaluate them. Consequently it is highly effective to throw out a series of questions against “standard evolution” as did Wells in *Icons of Evolution*, as even if these ignore many aspects, which are impregnable (viz. the great age of the earth). Then, evolution will be *perceived* to be dubious.

That, combined with a binary approach, whereby one has either to accept Evolution or Creation, reduces the argument to a choice between atheistic evolution and creation in Six Days. Though for over 150 years there has been a spectrum of opinion, YECs stress that there are only two choices as was made clear in an *ICR Impact* article in 1983, “creation scientists maintain that there are only two basic explanations—creation and evolution—all explanations can be included within one or the other of these two basic explanations.” Hence once one has demonstrated that evolution is wrong (or cast doubts on it) then creation (in the YEC sense) must be right. In his classic article *Why Creation Science?* George Marsden (Marsden, 1991, pp. 153–181) demonstrates that it is simply not true to the understanding of evolution in relation to creation over the last 150 years.

CREATIONIST LITERATURE

There are many high-selling creationist books, which are usually well written and produced. A cursory look will show that the arguments are appealing to a Christian with little science, or one whose science is limited to physics and chemistry. Essentially they are based on two arguments; first an “evangelical” view of scripture will result in taking Genesis literally (forgetting that most evangelicals both past and present did not do so) and secondly geological and evolutionary science is fatally flawed. Most books are variations on the same theme. There are many well-produced children’s books and short tracts of varying quality. The most popular is *Big Daddy*, which has had an immense distribution and influence (<http://www.chick.com/> look for bigdaddy). The amount of YEC material on the Web is almost infinite and of variable quality.

EVANGELICALS AND YOUNG EARTH CREATIONISM

Owing to the highly successful public relations of YECs, there is the perception, especially in America, that YEC *is* the evangelical position

on science. Thirty years of “witnessing for creation” has ensured this. As a result other views, be they Progressive Creationist or Theistic Evolutionist, are now regarded with suspicion by many evangelicals and open to the mantra, “You don’t believe the Bible.” There is much anecdotal evidence of Christians receiving hostility in evangelical churches for “believing evolution,” resulting in heartache and members leaving churches. YEC insistence that an evangelical must be young earth also has its sinister side as less than Christian methods have been used to silence critics.

One of the earliest victims was Daniel Wonderly (d2004), who taught science at Grace College, Indiana, from 1966 to 1973. Wonderly was a conservative Baptist, who accepted geological time but not evolution. That was common among American evangelicals up to the Sixties and thus these beliefs, though seen as *ultra* by secular scientists, were acceptable with evangelical colleges. He regarded himself as a biblical creationist and adopted a Concordist view of Genesis. When applying for the post he did not hide his views from the college. This coincided with the time when YEC was gaining momentum after the publication of *The Genesis Flood*. While he was there Whitcomb, coauthor of *The Genesis Flood*, was persuading his colleagues that they must adopt “his extreme position if they were going to be true to the bible.” Wonderley wrote to me in 1984, “By 1970 he {Whitcomb} persuaded the academic dean of the college that I would have to be either dismissed or entirely silenced . . .”² He was finally forced out in 1973 because of several unpublished papers giving geological evidence for age. In 1977 he published *God’s Time-Records in Ancient Sediments*, which is a fine summary of standard geological arguments for great age, excluding radiometric age-dating. Wonderly also argued later that YEC was making thinking evangelicals inclined to adopt theistic evolution, resulting in the double marginalization of his intermediate position.

PERVERSIONS FROM YEC

In the nineteenth century, the Rev. W. J. Coneybeare, son of the geologist W. D. Coneybeare, wrote a novel entitled *Perversion*. It was not about kinky sex, but how Christians converted, or perverted, from their original faith. The hero had perverted from Protestantism to Roman Catholicism. There are many, who, after being brought up in a conservative church, move off, reject young earth ideas and move either into a broader Evangelicalism, liberal Christianity, agnosticism, or atheism. Some, like E. O. Wilson, were brought up in a fundamentalist church and on studying science reject the faith of their youth. This is not unique to those who go to college with YEC beliefs. More significant are those who were hard-core YEC, who later

pervert. Over the last thirty years, I have come across many who were at one stage YEC. By that I mean a committed YEC, rather than one who adopted it as a temporary stage in their life. At present most are Americans, and include several who were YEC during their university days and then later rejected what they were taught in their conservative churches. The destination of those who left YEC varies. The common theme in all the stories is rejection by former soul-mates, coupled with a sense of loss.

One of the most high profile converts from YEC in the United States is the geophysicist Glenn Morton, whose story is on his Web site (<http://home.entouch.net/dmd/gstory.htm>). He was brought up a YEC, graduated in physics in 1972, and worked as a geophysicist in a seismic company. He wrote,

This was where I first became exposed to the problems geology presented to the idea of a global flood. . . . I would see buried mountains, which had experienced thousands of feet of erosion, which required time. Yet the sediments in those mountains had to have been deposited by the flood, if it was true. I would see faults that were active early but not late and faults that were active late but not early. I would see karsts and sinkholes (limestone erosion), which occurred during the middle of the sedimentary column (supposedly during the middle of the flood) yet the floodwaters would have been saturated in limestone and incapable of dissolving lime. It became clear that more time was needed than the global flood would allow.

He contributed twenty papers to the Creation Research Society Quarterly, but after 1980 had doubts. In 1986 he presented a paper entitled *Geologic Challenges to a Young-Earth* at the First International Conference on Creationism. It was not well received. John Morris challenged him, and according to Robert Schadewald,

went to the microphone and identified himself as a petroleum geologist. He questioned Morton's claim that pollen grains are found in salt formations, and accused Morton of sounding like an anticeationist, raising more problems than his critics could respond to in the time available. Morris said that the ICR staff is working on these problems all the time. He told Morton to quit raising problems and start solving them. Morton chopped him off at the ankles. Two questions, said Morton: "What oil company did you work for?" Well, uh, actually Morris never worked for an oil company, but he once taught petroleum engineering at the University of Oklahoma. Second, "How old is the Earth?" If the earth is more than 10,000 years old then Scripture has no meaning. Morton then said that he had hired several graduates of Christian Heritage College, and that all of them suffered crises of faith. They were utterly unprepared to face the geologic facts every petroleum geologist deals with on a daily basis. Morton neglected to add that ICR is much better known for ignoring or denying problems than dealing with them.

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As Morton wrote,

It appeared that the more I questions I raised, the more they questioned my theological purity. When telling one friend of my difficulties with young-earth creationism and geology, he told me that I had obviously been brainwashed by my geology professors. When I told him that I had never taken a geology course, he then said I must be saying this in order to hold my job. Never would he consider that I might really believe the data. Since then this type of treatment has become expected from young-earthers. I have been called nearly everything under the sun but they don't deal with the data I present to them. Here is a list of what young-earthers have called me in response to my data: "an apostate," (Humphreys) "a heretic" (Jim Bell although he later apologised like the gentleman he is) "a compromiser" (Henry Morris) "absurd," "naive," "compromising," "abysmally ignorant," "sloppy," "reckless disregard," "extremely inaccurate," "misleading," "tomfoolery," and "intentionally deceitful" (John Woodmorappe), "like your father, Satan" (Carl R. Froede—I am proud to have this one because Jesus was once said to have been of satan also), "your loyalty and commitment to Jesus Christ is shaky or just not truly genuine" (John Baumgardner).

By 1994 Morton was finished with YEC saying that,

Nothing that young-earth creationists had taught me about geology turned out to be true. I took a poll of my ICR graduate friends who have worked in the oil industry. I asked them one question. "From your oil industry experience, did any fact that you were taught at ICR, which challenged current geological thinking, turn out in the long run to be true?" That is a very simple question. One man, Steve Robertson, who worked for Shell grew real silent on the phone, sighed and softly said "No!" A very close friend that I had hired at Arco, after hearing the question, exclaimed, "Wait a minute. There has to be one!" But he could not name one. I cannot name one. No one else could either. One man I could not reach, to ask that question, had a crisis of faith about two years after coming into the oil industry.

Since then Morton has continued in the oil industry and has written a book against YEC, and contributes robustly on geological objections to a young earth. Theologically, he has remained very conservative and strives for a concordist position on Genesis and geology, and thus claims to take Genesis literally. His concordism is strained, as he believes that Adam lived 5 million years ago. Morton is vigorously opposed to any allegorical and accommodationist interpretation. This means that he is an exposed position, as his theology is not far removed from the ultrafundamentalism of YEC. He seems to find it harder to reject YEC theology than YEC science.

Of a similar age is Edward Babinski, who graduated in biology in 1974. Like Morton he began to have doubts about YEC teachings and in time moved to agnosticism. In his account, Babinski traces out his route. He

first moved to an old earth position and found Wonderley's writings very helpful, then rejected conservative theology and became agnostic. Like Morton he has received much harsh criticism from YECs.

Another with impeccable evangelical credentials is the geologist Davis Young (b1941), emeritus professor of geology at Calvin College. He has written several fine works on the history of igneous geology. Young is the son of E. J. Young (1907–1968), who was Old Testament professor at Westminster Theological seminary from 1936 until 1968 and published conservative works on early Genesis. After studying geological engineering at Princeton he became convinced by *The Genesis Flood* but later questioned it, to Morris's disappointment. He remained committed to the biblical inerrancy of his father, but argued against YEC in *Creation and the Flood* (1977). A few years later he published *Christianity and the Age of the Earth* (1982) which, dealt with both the ways Christians have understood the age of the earth in the past, and summarized arguments for the age of the earth. It is now being revised. In 1995 he published a major historical study on *The Biblical Flood*, which considers how the flood has been understood since the Renaissance and its place in the rise of geology. Young has moved from the biblical literalism of his early years to a position now, which sees little history in early Genesis. Though his Christian convictions have not changed, he is perceived to have rejected orthodoxy for a liberal version of Christianity. As well as upsetting Morris by his defection Young has been disparaged by YECs with Mortenson describing him as "the professing evangelical old-Earth geologist at Calvin College."

I describe these at length to give a flavor of the way in which scientifically informed YECs may break out of the straitjacket. There have been many others, who have rejected YEC teaching. While researching this, I came across a good few who were prepared to give their testimonies, including several members of the ASA. Their perversion could be sudden or slow, but often it resulted in a rupture of old friendships or leaving the church of their youth.

INTELLIGENT DESIGN

Some readers will consider my discussing Intelligent Design (ID) along with YEC, with the implicit equating the two. as historically and theologically inaccurate, as ID and YEC should be considered as totally distinct. That was my opinion until a few years ago, as I thought that all the evidence pointed to a distinction, especially in that ID tended to be old earth. Writers like Pennock and others referred to ID as IDC (Intelligent Design Creationism) and regarded them as different varieties of the same species. That seemed wrong as Dembski was clearly old earth and Behe accepted common descent. Two things, which came to light since 2000 have

demonstrated their close equivalence. The first is the alacrity in which ID associate with YEC on issues such as science education as in Kansas, Ohio and Dover, Pennsylvania and *Truthinscience* in the United Kingdom and the second is that the origins of ID have roots in YEC as was shown by Forrest and Gross over the replacement of the word “creation” by “design” in the creationist text *Of Pandas and People* in 1987. Thus it is now not possible to distinguish the two as one could in the 90s.

Until the 90s evangelicals tended to adopt one of the three approaches of Old Earth Creationism (OEC), YEC or Theistic Evolution (TE). About 1990 a fourth player appeared—ID. Initially this seemed to be part of OEC or even TE, but since the late 90s it has become stridently anti-evolution and confrontational and more and more associated with YEC. From the 70s, the motivating force of all attempts to limit the teaching of evolution in schools came from YECs, with their insistence of the two-model approach—either Creation or Evolution. As the millennium approached the two-model approach was replaced by the demand to teach ID. This has resulted in a new tactic in educational campaigns as the emphasis has shifted to teaching “design” or to “teaching the controversy.” Three of the recent attempts to change educational policy in Ohio (2002–2003), Kansas (2005), and Dover, Pennsylvania (2005) and *Truthinscience* in the UK (2006) have centered on teaching design rather than creation. This may appear to be a climb-down as gone are the YEC arguments. Those opposing such proposals are as vehement against the new approach as they were of the old. In their opposition several critics of ID have suggested that it is just old-fashioned creationism, which has evolved into a new form. As with YEC, ID produces more heat than light.

The chief argument of ID is that many biological features are so complex that they are “irreducibly complex,” as is the mechanism of blood-clotting or the flagellum and thus could not have evolved and so are the result of an intelligent designer. Proponents claim that this is a purely scientific argument and that it has nothing to do with theology. Hence to teach “Design” causes no problem with law against teaching religion. ID does not claim to be an evangelical stance, but most of their proponents are, as are Steve Meyer, Bill Dembski, Paul Nelson, Phillip Johnson, and others. Michael Behe, author of the best-selling *Darwin’s Black Box*, is a Roman Catholic, Jonathan Wells, author of *Icons of Evolution* belongs to the Unification Church or “Moonies.” Many of these are members or fellows of the *Discovery Institute*, a right-wing think tank in Seattle.

Since the late 80s ID has been put forward as an alternative to YEC and “Evolutionism” and leapt to prominence with the publication in 1996 of *Darwin’s Black Box* written by Michael Behe of Lehigh University. Though ID claims to be independent of any theistic approach, ID must be considered as an aspect of evangelical perspectives on science because, first, many

ID exponents are evangelical and secondly supporters of ID have worked alongside YEC evangelicals in various states in antievolution education bills. At the present time many evangelicals who wish neither to support YEC or TE have opted for ID and ID has the blessing of Inter-Varsity Press, a leading evangelical publishing house, who have published several works by Johnson and Dembski. As ID has come to the fore in recent years, I shall give an account of its history and development.

Origins of Intelligent Design

Though ID came to prominence in the late 90s, its roots go back to the early 80s, especially in two books; *Origin Science, a Proposal for the Creation-Evolution controversy* (1987) by Norman Geisler and Kerby Anderson and secondly, Bradley, Olson, and Thaxton *The Mystery of Life's Origin* (1984). The two books rejected both a young earth and theistic evolution. The latter three authors, all scientists, argued that the self-organization of molecules was incapable of producing life, thus pointing to a non-naturalistic origin of life. The common YEC/ID division of science into *Operation* and *Origin* science stems from Geisler and Anderson. This is not accepted outside creationist circles, though it is part of the "controversy."

In 1981 Bradley and Olson were involved in the *Chicago Declaration on Inerrancy*, when they argued that inerrancy allows geological time but not evolution. It seems that their search for a non-naturalistic explanation of life was predicated by a belief in inerrancy. Much too has been made of Michael Denton's *Evolution; A Theory in Crisis* (1986), which challenged evolution from a secular standpoint, but he has recently back-tracked. Politically, the most significant event was the lawyer Phillip Johnson's sabbatical visit to England in 1987. He came to question "Darwinism" after visiting the British Museum of Natural History and reading Dawkins' *The Blind Watchmaker*, and also visited Stephen Meyer, who was then doing a Ph.D. on the philosophy of science at Cambridge. Four years later Intervarsity Press launched *Darwin on Trial*. The book is a sustained critique on neo-Darwinism, which he considered to be totally dependent on a naturalistic philosophy. He wished to challenge this by providing a "wedge" between scientific empiricism and naturalism. A common and justified criticism of Johnson is that he is inaccurate in his depiction of Darwinism. This movement grew and attracted the philosophers Plantinga, Moreland, and Craig, who introduced the concept of *theistic science*.

Soon after, in 1992 a conference was held at the Southern Methodist University, with Johnson, Behe, Meyer, and Dembski as speakers. After that conferences were held at Biola (1996), which gave rise to the book *Mere Creation*, (Dembski, 1998), Austin (1997), Baylor, Concordia in Wisconsin and Yale (2000) and Calvin (2001). At Concordia and Baylor some of the

participants were strong critics of ID, including Conway Morris, Schermer, Ruse, and Ken Miller. The Concordia conference gave rise to the book *Debating Design*, but only a few of the chapters were given as papers at the conference. In 1996 *Darwin's Black Box* was published and also that year the Center for the Renewal of Science was formed as part of the Discovery Institute (DI) in Seattle. This gave both political and financial support for the movement. The DI began as a radical Republican think-tank and has remained right-wing. With the financial backing of the DI, fellows are able to research alternatives to Darwinism and have produced a great volume of literature, most published by Christian publishers. Despite their prodigious output, virtually no papers on ID have been published by peer-reviewed science journals.

Since 2000, attempts in the United States to limit the teaching of evolution in schools have argued for "Design" as an alternative rather than Creation. The influence of ID may be seen in their arguments. In 2000, Jonathan Wells published *Icons of Evolution*, which criticized several textbook examples of evolution; the Cambrian Explosion, the peppered moths, and Haeckel's embryo diagrams. These are often presented as though they were deliberately fraudulent, for example the pinning of peppered moths to trees. Just imagine going out at night, waiting for a moth to land on a tree and then photograph it with a 1950s flash camera!! ID began to be involved in challenges to educational policy. All previous attempts to downgrade the teaching of evolution had failed, partly because YEC was presented as the alternative. A different tactic evolved with the emphasis on teaching the Design in living forms and ignoring or playing down the tenets of a Young Earth. This had a far wider appeal as those who accepted the vast age of the earth but not evolution could support it. Thus an alliance of YEC and ID was formed. Along with the teaching of Design as an alternative to evolution, it was also proposed that evolution should be taught critically, hence the cry, "teach the controversy." During 2002–2003 there was an almost successful attempt to introduce the teaching of ID in Ohio, followed by the disastrously unsuccessful attempt in Dover, PA in 2005. In all the discussions and hustings, various proponents were brought in from outside—Ken Miller and Stephen Meyer for example.

RELATIONSHIP OF ID WITH YEC²

The \$64,000 question is whether ID is an evolved version of YEC. Intelligent Designers like Dembski emphatically deny this but many, whether Pennock in *The Tower of Babel*, or Barbara Forest and Eugenie Scott of NCSE claim that the two are genetically related. To confirm this ID is often called the *New Creationism*, which is most unhelpful. There are

notable differences. ID does not explicitly base its ideas on the Bible and thus makes no use of either Creation or Flood. Neither does it make an appeal to the Judaeo-Christian God. As discussed above they eschew discussion on the age of the earth, though most IDers do accept an old earth. The two leading YEC organizations, ICR and AIG, are highly critical of ID for being neither Biblical nor Young Earth, but value their respect for design.

So there seems to be no connection. However in recent educational cases, as in Ohio, Kansas, Dover, Pennsylvania, and *Truthinscience*, the tactic is to enforce legally the teaching of "Design" rather than "Creationism," but the proponents are dominantly YEC. This highlights the change by YEC on the teaching of evolution. In the 80s they used the *Two Model Approach* of Creationism and Evolutionism, which was defeated in 1982 in Arkansas and in 1987 when the *Edwards v. Agouillard* case overturned Louisiana's creationist legislation. After several defeats a new tactic was needed. Here Design fitted the bill, especially after Philip Johnson's *Reason in the Balance* (Johnson, 1995) dealt with educational issues. Focusing on "design," "critical thinking," and, later, "teaching the controversy" seemed far more likely to succeed. Thus, in recent cases, young earth arguments are ignored. Hence some see ID as a Trojan Horse for YEC.

Superficially it may seem that ID—the "New Creationism" resulted from the *Edwards v. Agouillard* judgment and is clearly "descent with modification" from the old creationism, that is YEC. But it is not the whole story as there has been the transference of ideas as Barbara Forest and Paul Gross have demonstrated in the replacement of the term "creation" by "design" in the biology text *Pandas and People* in 1987. This was part of the plaintiffs' presentation at Dover and I cite from the Memorandum Opinion of December 20, 2005:

As Plaintiffs meticulously and effectively presented to the Court, *Pandas* went through many drafts, several of which were completed prior to and some after the Supreme Court's decision in *Edwards*, which held that the Constitution forbids teaching creationism as science. By comparing the pre and post *Edwards* drafts of *Pandas* [in 1987], three astonishing points emerge: (1) the definition for creation science in early drafts is identical to the definition of ID; (2) cognates of the word creation (creationism and creationist), which appeared approximately 150 times were deliberately and systematically replaced with the phrase ID; and (3) the changes occurred shortly after the Supreme Court held that creation science is religious and cannot be taught in public school science classes in *Edwards*. This word substitution is telling, significant, and reveals that a purposeful change of words was effected without any corresponding change in content, which directly refutes FTE's argument that by merely disregarding the words "creation" and "creationism," FTE expressly rejected creationism in *Pandas*. In early pre-*Edwards* drafts of *Pandas*, the term "creation" was defined as "various forms of life that began

abruptly through an intelligent agency with their distinctive features intact—fish with fins and scales, birds with feathers, beaks, and wings, etc,” the very same way in which ID is defined in the subsequent published versions. (P-560 at 210; P-1 at 2-13; P-562 at 2-14, P-652 at 2-15; P-6 at 99-100; P-11 at 99-100; P-856.2.) This definition was described by many witnesses for both parties, notably including defense experts Minnich and Fuller, as “special creation” of kinds of animals, an inherently religious and creationist concept. (28:85–86 (Fuller); Minnich Dep. at 34, May 26, 2005; Trial Tr. vol. 1, Miller Test., 141–42, Sept. 26, 2005; 9:10 (Haught); Trial Tr. vol. 33, Bonsell Test., 54–56, Oct. 31, 2005). Professor Behe’s assertion that this passage was merely a description of appearances in the fossil record is illogical and defies the weight of the evidence that the passage is a conclusion about how life began based upon an interpretation of the fossil record, which is reinforced by the content of drafts of Pndas. The weight of the evidence clearly demonstrates, as noted, that the systemic change from “creation” to “intelligent design” occurred sometime in 1987, after the Supreme Court’s important Edwards decision. This compelling evidence strongly supports Plaintiffs’ assertion that ID is creationism re-labeled. Importantly, the objective observer, whether adult or child, would conclude from the fact that Pndas posits a master intellect that the intelligent designer is God. (<http://www.yale.edu/lawweb/jbalkin/cases/kitzmiller.pdf> [pp. 14-15])

There is much in favor of this claim but it is only a partial explanation, and it is not correct to state that “ID is solely creationism re-labeled.” For a start, against that, Philip Johnson had no YEC roots and became convinced of ID sui generis in Britain in 1987. Several other leaders of ID have no roots in YEC like Behe, Dembski, Thaxton, Bradley, and Pattle Pun and most continue to distance themselves from YEC. But Nancy Pearcey and Paul Nelson are clearly YEC as well as ID.

However the replacement of “creation” by “design” in *Pndas and People*, the refusal to come clean over the age of the earth, and the association of YEC and ID makes it difficult for observers to distinguish between the two. I hope that by dealing with the historical order of events, rather than an assessment of ID arguments, has indicated both how ID came about in the last twenty-five years and its relationship with YEC. ID may not be an evolved version of YEC, but many of its genes have been spliced in from YEC.

WHAT IS INTELLIGENT DESIGN?

The term “Intelligent Design (ID)” is frequently used, but often there is no clear understanding of what it actually means. Design has a long heritage going back to the Greeks, but the most famous exponent was William Paley. Before defining ID it is best to consider the variety of Design. A rough typology gives four types of design, these are

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1. The structure of the universe shows order and thus in the teleological argument its Design demonstrates a designer. More recently this has been expressed as the “fine-tuning” of the universe.
2. The succession of life and natural processes throughout the planet’s history show so much order and design, that it suggests some being has guided and designed it. Historically this is how Asa Gray responded to Darwin’s chancy ideas of Natural Selection in the 1860s and is explicitly or implicitly held by many Christians today who hold to evolution. This includes Popes John Paul II and Benedict XVI as well as many evangelicals, especially those in the ASA or CiS.
3. The ahistorical recognition of ordered biological structures as designed. This finds its epitome in William Paley and Robert Hooke and John Ray a century earlier.
4. The fourth example is to claim that some biological features could not have come about by natural causes and “abruptly appear.” Behe and others make this argument over the flagellum and blood-clotting. It is defined as irreducible complexity and is considered to demonstrate Design. Here IC only applies to some biological features whereas Paley considered all features to show Design.

With Design being ascribed to such a variety of ideas, Design is a fluid concept. Intelligent Design focuses on the fourth—irreducible complexity and this is at the heart of ID. However fine tuning is often claimed as part of ID though it has a different provenance and the originators have nothing to do with ID. Hence ID must be seen as the claim of IC, which has been challenged by many especially Ken Miller and charged, justifiably in my view, as God of the Gaps. Further ID is given mathematical support by Bill Dembski in his many publications and in many ways he is the leader of ID, though Philip Johnson has been the leading protagonist.

There is now and immense literature by exponents of ID and it has attracted much critical comment and some have made their academic reputation by dissecting ID! The consensus of the latter is that ID has no scientific worth and this was borne out by Judge Jones’ summing up at the Dover trial in 2005. Though ID is rejected by most scientists, a good proportion of evangelicals buy into it, especially if they eschew YEC. Though ID was initially an American phenomenon, it is gaining in significance elsewhere especially in Britain, where its main supporters seem to be YEC as are the leaders of *Truthinscience*, like Andy McIntosh.

THE APPEAL OF INTELLIGENT DESIGN

Most critics of ID argue that ID is “scientifically vacuous” and worthless. Undoubtedly several of their core arguments are lacking in substance, for

example the irreducible complexity of the *flagellum* and blood-clotting, which Behe claimed as conclusive (Behe, 1996). Miller and Doolittle have challenged most of these arguments (Miller, 1999). Further Lamouroux and others have argued that the representation of "Darwinism" put forward by Johnson and others is seriously flawed and inaccurate. We are thus faced with the same question as over YEC. Why do so many Christians, especially evangelicals, accept ID arguments with alacrity, though they have been "demolished" by most scientists?

The slick answer is to say "Dawkins," but that does contain much truth. Dawkins has pushed his reductionist and antireligious agenda for decades beginning with the less-overtly antireligious *The Selfish Gene* in 1976 and recently overtly in *The God Delusion*. The evangelizing atheists who include Dawkins, Dennett, Pinker, Atkins, Crick, and others push an agenda which seeks to eliminate religion in any form, dismissing it as "contrary to reason" and since 9/11 as positively dangerous. It is these, who are often skilled authors and public speakers, who present the public front of science. However theirs is an atheism, which explicitly bases itself on science and above all evolution, which is considered to banish religion forever. Their followers are often even more strident as many blogs demonstrate (e.g. P. Z. Myers on *Pharangula*, and several others). Faced with that particular challenge, numbers of Christians are attracted by ID (or even YEC) as a way of opposing these atheistic claims. Hence as ID challenges Darwinism (whatever that is) at its heart, whether its naturalism or reductionism, the theism of ID has considerable attractions. Undoubtedly one should distinguish between the reductionist *Scientism* of these atheists and the *science* of evolution, but it is convenient both to the scientific atheists and ID to keep this distinction blurred. Hence it can be said that ID and scientific atheism feed each other, and there is little room for moderation.

CONCLUSION

As Creationism in its many forms is the most visible and vocal expression of Evangelicalism and science, it often renders invisible those evangelicals, both past and present, who eschew any form of creationism. At the present time, and for the foreseeable future, YEC and ID are between them the high-profile responses of evangelicals to science in every country in the world, which has a significant Christian presence. With the continuing growth of Evangelicalism, it is inevitable that the type of controversy in churches and education will spread throughout the world, as has already begun to happen in Britain, Australia, and the nominally Catholic continental Europe and Orthodox Eastern Europe. Though beyond the scope of this study, it has also spread to the Muslim world.

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Despite the prevalence of creationism today, there is a strong and vibrant strain of Evangelicalism in many countries which is accepting of mainstream science and to those we now turn.

NOTES

1. *Askageologist* is a service provided by the Association of Christian Geologists to provide answers either on geological or faith questions. "Answers" are provided by Dr. Ken van Dellen who used to teach geology at Calvin College.

2. This has been discussed at greater length by Matske (Pennock and Ruse, 2007) but was too recent to be considered.

