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Perspectives on Creationist Apologetics

The 'creationist' movement has arisen as one form of response to a perceived threat to a biblical view of origins. It opposes evolutionary science on grounds of biblical exegesis and of science, and also on general philosophical grounds which include moral ones. Advocates of theistic evolution, on the other hand, see no compelling need, either on biblical or scientific grounds, to oppose current biological thinking.

But how far is the threat felt by the creationist a real one—real, that is, in the sense of being incompatible with biblical Christianity? Certainly the threat has been real enough in terms of the hostile, and sometimes excessive, claims which have been made in the name of evolution. Take for example the pronouncement of the late Sir Julian Huxley, that

'in the evolutionary pattern of thought there is no longer either need or room for the supernatural'¹

or, more recently, Monod's assertion that

'... man at last knows that he is alone in the unfeeling immensity of the universe, out of which he emerged only by chance. Neither his destiny nor his duty have been written down.'²

What is under dispute, though, is not whether some people have made threats, or others have felt under threat. Neither of these can truthfully be denied. Rather it is whether the grounds on which the threats are made can withstand scrutiny. There is a world of difference between a real gun and a replica which temporarily frightens people before its impotence is exposed.

At the very outset it is important to recognize that, in common with the word 'evolution', the terms 'creationism' and 'creationist' carry a

* This paper is based on extracts from the book *Creation or Evolution—a false antithesis?*, published in June 1987 by Latimer House, Oxford, £3.

1. J. Huxley, *Essays of a Humanist* (London: Chatto & Windus, 1964) 82.
2. J. Monod, *Chance and Necessity* (Glasgow: Collins/Fontana, 1974) 167.

variety of meanings. In order to minimize confusion a procedure suggested by Roberts³ will be adopted:

Throughout, the term 'Creationist' is used to describe those who hold to a 'Young Earth' i.e. 6000–20000 years old, in contradistinction to those Christians who also believe in Creation (and thus are Creationists) but who take positions which may be termed Progressive or Ancient Creationism or Theistic Evolution.

A disadvantage of the term 'creationism' is that it fails to differentiate between the logically distinct matters of asserting (denying) *divine action* at all and asserting (denying) a *particular theory* of how and when that divine action took place. 'Creation'—as distinct from creationism—will be taken to mean the divine act of 'bringing into being', irrespective of any particular time relationships or specific mechanisms.

A typical compendium of creationist beliefs

This is not a quotation from a creationist source, but a composite piece, made up by collecting together the ideas which commonly appear in creationist literature.

The plain reading of the biblical account of creation requires a short period of six, consecutive '24 hour' days, rather than the thousands of millions of years needed by evolutionary theory. Thus it implies a young earth a few thousand years old, something which is supported by true science, as distinct from orthodox evolutionary thinking, which is not truly scientific. It also implies that many different 'kinds' of plants and animals were separately created in the beginning and are unrelated genetically. The trouble is that our educational system 'brainwashes' trainee scientists into evolutionary ideas. Furthermore, the scientific community's system of refereeing articles submitted for publication prevents any alternative model of origins to the evolutionary one from ever seeing the light of day.

Evolutionary orthodoxy, on the other hand, explains the universe in general—and the earth and man in particular—without reference to God. It replaces the idea of divine creation by chance processes which are wasteful, cruel and which entail the presence of death in the world from the outset. Man is portrayed as wholly continuous with the animals rather than as being uniquely made in the image of God. There is no reference to man as 'a living soul'; he is regarded as nothing but a highly complicated assemblage of atoms and molecules. He is seen as progressing from the common, lowly origin of all living things towards perfection, rather than as having fallen; and his ethical system has evolved naturalistically with him, instead of having been given to him by God. What is more, terrible things

3. M. B. Roberts, 'The roots of creationism', in *Faith and Thought* 112, 1986 (1) 21.

have been done in the name of evolution. Communists, Capitalists and Nazis have all tried to use the idea of 'struggle' to justify, respectively, revolution, cut-throat competition in business, and genocide. Finally—literally finally—an evolutionary view of the world has as its end point the 'heat death' of the universe and takes no account of the personal return of the Lord Jesus Christ. For reasons like these, no Christian should give credence to evolution.

The above list of central tenets is not exhaustive, nor is there universal agreement among creationists about all these points. In general, however, the points made in the first paragraph are essential to creationism. Those made in the second paragraph seem reasonably to follow if one believes those made in the first, and most creationists accept them.

At this stage it is appropriate to examine the meanings of the concepts *evolution* and *creation* and their associated 'isms', *evolutionism* and *creationism*. This is a necessary prelude to examining whether 'evolution' and 'creation' are alternatives, as creationists claim.

Evolution, Creation and their 'isms'

Evolution

Where the word 'evolution' is used on its own in this text, it should be taken to mean 'organic evolution' as distinct from 'stellar evolution' and 'chemical evolution'. Evolution is the name of a *process* of 'descent with modification'. Everyone is aware that offspring are not exactly the same as their parents and no immediate dissidence arises over this statement. In fact, creationists by and large have no objections to the assertion that evolution occurs on a small scale, although many resist the use of the word 'evolution' and prefer 'microevolution' or 'variation'.

"There is obviously no difficulty in believing that variation leading to microevolution in varieties and near species does occur. The facts point to the correctness of this position, which certainly does not conflict with any part of the scriptural revelation."⁴

The classic example of the *peppered moth* of England, "evolving" from a dominant light coloration, as the tree trunks grew darker with pollutants during the advancing industrial revolution, is the best case in point—[industrial melanism]. This was not evolution in the true sense at all but only variation.⁵

4. A. E. Wilder Smith, *Man's Origin, Man's Destiny* (Illinois: Harold Shaw, 1968) 204.

5. H. M. Morris, *Scientific Creationism (Public School Edition)* (San Diego: Creation-Life Publishers, 1974) 51.

'In our discussion of evolution . . . Neither are we referring to "industrial melanism," a case often cited by evolutionists as proof for evolution . . . for this is not evolution at all!'⁶

The comment in the second quotation that this is 'not evolution in the true sense' seems to be a definitional retreat. (A definitional retreat occurs when somebody changes the meaning of a word; in this case the meaning of the word 'evolution' is changed to counter the objection that industrial melanism shows that, at least on a small scale, evolution has occurred.)

What creationists do object to is the theory of large-scale evolution, or 'macroevolution' as it is often called, as distinct from the microevolution referred to above. The former suggests that all living things come from a common ancestor, culminating in man. This creationists see as incompatible with divine creation.

'Christians may quite happily concede that one species of finch might change into another. What they do *not* believe, and must fight with all their strength, is the view that this process can cause changes in the direction of greater complexity.'⁷

In view of the above quotations it is most important to distinguish between

1. the fact of change; 2. the extent of change—micro or macro; 3. the mechanisms of change; and 4. the philosophical ideas associated with the changes.

Failure to differentiate between the concept of evolution as a process of descent with modification and the *mechanism* of evolutionary change, such as natural selection, generates problems. It has led some people mistakenly to believe that evolution has been in doubt whenever Darwin's proposed mechanism (natural selection) has been in doubt. But the important discussions historically have in fact centred on *how* evolution has occurred, not on *whether* it has occurred. This distinction sometimes gets overlooked; which may be illustrated from the following creationist comment:

'There are signs that if we oppose evolution now, we stand a better chance of success than at any time during the last 100 years. One or two non-Christian scientists have recently published articles critical of evolution, and in America people campaigning against evolution are beginning to be a real embarrassment to evolutionists.'⁸

6. D. T. Gish, *Evolution The Fossils Say No!* (2nd ed.) (San Diego: Creation-Life Publishers, 1973) 21f.

7. S. Baker, *Bone of Contention: Is Evolution True?* (2nd ed.) (Welwyn: Evangelical Press, 1976) 5.

8. *Ibid.*, 5.

The last part of this statement is certainly the case! Indeed, a lot of ill-feeling has been caused by creationists among those scientists whose professional debates about the *mechanisms* of evolutionary change have been misrepresented. Such misrepresentations arise through taking passages out of their proper contexts, so giving the impression that the author is disputing *evolution* rather than its *mechanisms*. Other passages which would provide a corrective to the misconception are omitted, with the end result, in some cases, of making it appear that an evolutionary biologist is supporting a creationist position. Not surprisingly, those whose writings have been treated in this way find it intensely irritating. Stephen Jay Gould, of Harvard University writes:

... creationists continually rely upon distortion and innuendo to buttress their rhetorical claim. If I sound sharp or bitter, indeed I am—for I have become a major target of these practices.

I count myself among the evolutionists who argue for a jerky or episodic, rather than a smoothly gradual, change of pace. In 1972, my colleague Niles Eldredge and I developed the theory of punctuated equilibrium ...

Since we proposed punctuated equilibrium to explain trends, it is infuriating to be quoted again and again by creationists—whether through design or stupidity, I do not know—as admitting that the fossil record includes no transitional forms ... Yet a pamphlet entitled: 'Harvard Scientists Agree Evolution Is a Hoax' states: "The facts of punctuated equilibrium which Gould and Eldredge ... are forcing Darwinists to swallow fit [sic] the picture that Bryan insisted on, and which God has revealed to us in the Bible."⁹

The 'embarrassment to evolutionists' referred to in the penultimate quotation may have other reasons than the supposed weakness of evolutionary science. It is an embarrassment which many Christians share!

Evolutionism

It cannot be overemphasized how important it is to distinguish between the *biological* theory of evolution and the *philosophical* ideas which some people have tried to tack on to it, as though they followed from the biology. It is towards these philosophical ideas, I believe, that criticism, Christian and other, is properly targeted.¹⁰ The distinction, often unrecognized, is between *evolution*, a scientific theory and *Evolutionism*, a world-view. This world-view, or interper-

9. S. J. Gould (1984) 'Evolution as Fact and Theory' in A. Montague (ed.) *Science and Creationism* (Oxford University Press, 1984) 123f.

10. M. Midgley, *Evolution as a Religion: Strange hopes and stranger fears* (London: Methuen, 1985).

tation of the world, is anti-Christian and it can be stated, in an extreme form, something like this:

'Mankind has arisen by a series of chance processes from the primaeval slime, by blind and purposeless forces. He is now casting off the undesirable features of his animal origins and progressing towards perfection. A great and indefinite future is in store for him when, through education, science, technology and an equitable distribution of wealth he has learnt to overcome present tensions. Nevertheless, man remains just another animal fighting for the survival of his species; a "naked ape" who is constituted by nothing more than the atoms and molecules which make him up. God is now an "unnecessary hypothesis" for explaining the world, since evolution did it. Neither is God needed as a basis for morality, for other bases are possible, including "evolutionary ethics", and these provide all that is needed. There is no transcendent purpose in life, for the final state of all things will be simply the "heat death" of the universe, when temperatures throughout space will even out to near the absolute zero. However, since this is almost unbelievably far distant, we can for practical purposes forget about it.'

Such a world-view is incompatible with Christianity. It paints a picture of man's emergence by accident as a moral being, rather than as having been purposefully created in the image of God, 'missing the mark' through primal sin and consequently needing a Saviour. It seeks to exchange God-given moral law for an ethical system claimed to be derivable from evolution and it includes no reference to final accountability and judgement. Atheistic world-views have, of course, been around long before evolutionary ideas were extant, but here they are erroneously claimed to emerge from evolution, rather than being read into it. Evolution has been welcomed and borrowed in the mistaken view that it is an ally for atheism.

Many Christians have recognized the incompatibility of this evolutionary world-view and said, rightly, 'We cannot let this go unchallenged.' The creationist movement, despite differences within its ranks, is one positive response of this kind. However, it can be argued that it is the philosophical accretions of evolutionary theory, rather than evolutionary theory itself, which are anti-theistic. Such philosophical system-building is parasitic upon evolutionary theory, and attempts to establish the one from the other involve errors of logic. Some Christian writers do not seem to have appreciated the 'logical Grand Canyon' between the science and the philosophical systems which purport to be based on it. Take, for examples, the following creationist statements:

Our whole society has in fact been influenced by the evolutionist outlook that there is no Creator, that Man is continually progressing and that his

bad behaviour is simply the remnant of his animal past. Such views are based on the supposed 'fact' of evolution.¹¹

... if evolution were merely a scientific theory affecting the interpretation of the data of biology, geology and astronomy, we would not be too concerned about it. Assuming that the problem of harmonising evolutionary history with the Biblical revelation of origins could be satisfactorily worked out (actually, of course, as we shall see later, such a harmonization is quite impossible), most Christians would be quite content to leave the subject to these scientists to work out ... But ... evolution has intruded itself into every area of life. It has become the basic undergirding philosophy of all the social sciences, the humanities, and even the study of religion itself, so that it is impossible to ignore its implications.¹²

In the first quotation the writer has erroneously assumed that evolutionary biology provides a secure base for such assertions. The last word of the second quotation, 'implications', is the key word there. Had the writer used the word 'associations' instead, there would have been no quarrel with what he had said. Certainly all the ideas which he has listed have been, and are, *associated* by some people with evolution. But it can be argued that the anti-Christian views which are sometimes developed within certain disciplines are not themselves *implied* by evolution.

Creation

Creation is a theological concept, not a scientific one. As such, 'creation' is in a different category of concepts from 'evolution'. 'Creation' is the divine *act* of 'bringing into being'. The concept is neither tied to a particular mechanism nor to time. When Christians affirm that 'God created the heavens and the earth' they mean that everything that there is owes its being to God. In the opening words of John's gospel 'Through him all things were made; without him nothing was made that has been made'¹³—the writer is referring here to Jesus Christ as the agent of creation.

Creationism

The key ideas have already been given and they fall into two distinct parts. One is the belief in divine creation, as defined above. The other is a 'package' of beliefs about particular time scales and mechanisms.

Creation and/or evolution

There are two grounds on which evolution might have to be rejected by a person who holds to the biblical view of God as Creator:

11. Baker, *op. cit.*, 1f.

12. H. M. Morris, *The Twilight of Evolution* (Grand Rapids: Baker Book House) 16.

13. John 1:3, NIV.

1. evolution might be *necessarily* incompatible with the idea of divine creation

2. evolution might be contradictory to creation if the biblical texts unequivocally deny such a process.

1. Evolution would be *necessarily* incompatible with divine creation if, say, one conceded claims about evolution like the one given below:

... the theory or idea of evolution teaches that all things happen by chance ... it supposes that everything happens by accident. There is no reason or purpose behind the universe. There is no guiding hand, no plan, in evolution.¹⁴

That is to say, if you accepted the above assertion you could not believe both in evolution and in creation without involving yourself in a contradiction. However, it is one thing to acknowledge that assertions like these are sometimes made by non-Christians, but quite another uncritically to accept them. In actual fact they do not withstand scrutiny. Evolution is a scientific concept and science is concerned with the physical world. Statements about 'God', 'plans', 'purposes' or 'guiding hands' of the 'hybrid' sort given above are outside of its terms of reference. Science leaves entirely open the question as to whether or not there is a God who initiates and sustains processes. It can neither affirm nor deny God's existence. Evolution may or may not be the process which God designs to fulfil his purposes. If it were not for Genesis Chapter 1, the problem would not arise. Evolution would just be one of the many processes that God uses to accomplish his purposes.

Furthermore, the *process* of evolution cannot be treated as though it were an alternative to the *act* of creation, as though as to suggest that a description of the process denies the act! Acts, and the processes involved in these acts, belong to different categories of concepts. They cannot be held to be alternatives. Thus there is no *logical* contradiction involved in believing both in creation and in evolution. Matters are further compounded by writers using the terms 'creation' and 'special creation' interchangeably. 'Creation' means the act of God in 'bringing into being', irrespective of particular time-scales or mechanisms. The term 'special creation' takes a variety of meanings and is typically used to describe ... 'the belief that God in some way *directly* intervened in the order of nature to originate each new species.'¹⁵

14. E. H. Andrews, *From Nothing to Nature* (Welwyn: Evangelical Press, 1978) 3.

15. N. C. Gillespie, *Charles Darwin and the Problem of Creation* (University of Chicago Press, 1979) 20f.

So there are possibilities for misunderstandings when, for example, the book, *The Truth: God or Evolution?* states that one of its goals

'... is to point out that there are only two theories which attempt to explain the origin of all life—Evolution and Creation—and that the discrediting of one of these (Evolution) logically proves the other (Special Creation).'¹⁶

The stated 'goal' is flawed. If the word 'Creation' means 'bringing-into-being-by-God', then it is wrong (Fallacy of the Excluded Middle) to try to persuade readers that they have to choose between two alternatives when, in fact, a third position is possible, that of accepting creation *and* evolution. However, since the term 'special creation' is added in parentheses, this is presumably what is intended to be understood by the word 'creation'. But then the goal is still defective since 'discrediting ... Evolution' does not 'logically prove' Special Creation. The quotation illustrates the failure to recognize that the words 'evolution' and 'creation' operate at different logical levels. One is a process, the other is an act. The alternative to evolution (a scientific concept) is not creation (creation is not a scientific concept) but some other *process* like the once popular 'spontaneous generation'. Thus it is not true to say that

'... whatever the difficulties in believing the theory [of evolution] ... they are incomparably less than the difficulties involved in rejecting the theory, since that would imply special creation ...'¹⁷

The demise of evolutionary ideas and the replacement of current views of an ancient universe by a young earth would not imply God's activity any more, or any less, than does the current picture. One cannot argue to theistic conclusions (divine creation) from non-theistic premisses (the age of the earth). All one can say is that a young age for the earth is consistent with one view of the Genesis text. No valid argument, which forces one to believe in God, can be constructed from any particular view of the age of the earth. There is room left to wriggle.

What the scriptures do declare is that

'Ever since the creation of the world his invisible nature, namely, his eternal power and deity, has been clearly perceived in the things that have been made.'¹⁸

So, the theist will see the universe as God's handiwork, while the

16. M. & S. Hall, *The Truth: God or Evolution?*, FOREWORD (New Jersey: Craig Press, 1974).

17. N. M. de S. Cameron, *Evolution and the Authority of the Bible* (Exeter: Paternoster Press, 1983) 14.

18. Romans 1:20 RSV.

atheist will not see it as such. People who give anti-evolution talks, thinking that those whom they convince will have to believe in creation, are pursuing a logically defective goal—as some have come to realize. Biblical diagnoses about human nature¹⁹ might have suggested that it probably would not be quite so easy as that.

One other way in which evolution could be *necessarily* incompatible with creation by the God of the Bible would be if we knew without doubt that the mechanisms of evolutionary change were such that no God who claimed to be good could use them without contradicting his own nature. But the point is open to debate, and we are not in a position to know this with certainty. Undeniably there is predation in nature, but there is also altruism; and alongside parasitism must be set symbiosis. Tennyson's 'Nature, red in tooth and claw' is an overstatement. This is not to belittle the moral dilemmas posed by animal and human pain, just to say that it is a grey area in which postulated evolutionary processes cannot be said to be necessarily at variance with the revealed character of God. In the biblical view, it is God, through his Son, who is 'upholding all things by the word of his power',²⁰ fallen world as it is, and nature currently includes predation and pain.

Arguments from incompatibility are in favour with many creationists. Nigel Cameron, for example, makes an incompatibility argument the main thrust against evolution in his *Evolution and the Authority of the Bible*. It is an area of apologetics which perhaps needs yet more working over.

2. Having pointed out that creation and evolution are not alternative concepts and are not *necessarily* compatible, we turn to the question of whether evolutionary theory is irreconcilable with the biblical records, as creationists claim.

'... the Bible and evolution contradict each other.'²¹

'... such a harmonization [of "evolutionary history with the Biblical revelation of origins"] is quite impossible ...'²²

Central to any examination of these assertions are hermeneutical questions about the literary *genre* of the early chapters of Genesis, and far too many creationist writers make no mention at all of this key issue, or else dismiss it cursorily by stating, rather than justifying, their own position. This is a serious omission, for the question of literary *genre* constitutes a central issue in the whole discussion of origins:

19. Jeremiah 17:9.

20. Hebrews 1:3.

21. Andrews, *op. cit.*, 4.

22. H. M. Morris, *The Twilight of Evolution* (Grand Rapids: Baker Book House, 1963) 16.

'What kind of literature is it that we are dealing with?' It is not even a simple matter of deciding into which single category—history, sermon, allegory, parable, poetry—it falls. For much of the Bible is a blend of history and symbolism. It is often not a matter of either/or but of both/and. We show no more respect for the Word of God when we insist on literalism, if symbolism is intended, than we do by treating historical narrative, intended as such, as only symbolic.

When considering literary *genre* we have to be careful to avoid the error of thinking that to say a part of Scripture is not to be read as literal history, is somehow to downgrade its status. 'To take things literally' is such an ambiguous phrase that it has caused a lot of unnecessary tensions. If it means that everything is to be treated at face value, it quickly leads to nonsense with texts like 'the valleys also are covered with corn; they shout for joy, they also sing.'²³ On 'taking things literally', C. S. Lewis once commented that

'The material imagery [of the Bible] has never been taken literally by anyone who had reached the stage when he could understand what "taking it literally" meant.'²⁴

Abuses of 'taking it literally' when it is symbolic can be matched with abuses of 'taking it symbolically/metaphorically' when it was meant literally, and Lewis commented on this error as well.

'Some people when they say that a thing is meant "metaphorically" conclude from this that it is hardly meant at all. They might think that Christ spoke metaphorically when he told us to carry the cross: they wrongly conclude that carrying the cross means nothing more than leading a respectable life and subscribing moderately to charities. They reasonably think that hell "fire" is a metaphor—and unwisely conclude that it means nothing more serious than remorse. They say that the story of the Fall in *Genesis* is not literal; and then go on to say (I have heard them myself) that it was really a fall upwards—which is like saying that because "My heart is broken" contains a metaphor, it therefore means "I feel very cheerful". This mode of interpretation I regard, frankly, as nonsense.'²⁵

There is a real danger in reading the Bible that we may unconsciously and misleadingly be reading the ancient text through twentieth-century Western scientific spectacles. A remarkable example of this is furnished by one creationist writer who, by contrast with the scientific community at large, thinks the universe is contracting, rather than expanding:

23. Psalm 65:13 AV.

24. C. S. Lewis, *Miracles—A Preliminary Study* (London: Bles, 1947) 95.

25. *Ibid.*, 95.

It may be objected that the Bible refers to the heavens as being "stretched out like a curtain" (Psalm 104:2) or "spread out as a tent to dwell in" (Isaiah 40:22; 42:5; 44:24) and the idea of cosmic contraction would thus be against the Scriptural affirmation . . . However, this paper takes no exception to the idea of the whole fabric of the heavens being stretched out instantaneously at the moment of Creation of matter at the beginning of the first Day, and then being maintained in that "stretched out" condition through the remainder of the six Days of Creation. On the 7th Day when God rested, the whole universe was left to obey the physical Laws that had been "built-in-" [*sic*] and the fabric of space, having been stretched out, then begins to pull together and collapse, in the same sense as a stretched out rubber band does when released.²⁶

Evolution—the question of its scientific status

Opposition to evolution has been mounted, not only on what are claimed to be biblical grounds, but also by claiming that it does not constitute a science. One approach has been to say that the essence of science is the repeatability of experiments. Since evolution is not repeatable, so the argument goes, it cannot be said to be a science and therefore should not be taught as such:

‘. . . it is manifestly impossible to prove scientifically whether evolution took place or not . . . the events are non-reproducible and, therefore, not legitimately subject to analysis by means of the so-called "scientific method".’²⁷

Geology, as might be expected, comes under a similar attack. The writers of *The Genesis Flood* preface their book by saying

‘. . . we do not presume to question any of the data of geological *science*. Science (meaning "knowledge") necessarily can only deal with *present* processes, which can be measured and evaluated at the present time; the "scientific method" by definition involves experimental reproducibility. Thus extrapolation of present processes into the prehistoric past or into the eschatological future is not really science.’²⁸

Such an approach is deficient in a number of ways. Repeatability is certainly important in science, but as a criterion of demarcation between science and non-science it is inadequate. It fails to take into account the distinction between the so-called *nomothetic* sciences, which aim to establish general laws describing indefinitely repeatable events and the *ideographic* sciences which are concerned with

26. B. Setterfield, *The Velocity of Light and the Age of the Universe* (Adelaide: Creation Science Association, 1983) 110.

27. H. M. Morris, *The Twilight of Evolution* (Grand Rapids: Baker Book House, 1963) 29.

28. J. C. Whitcomb & H. M. Morris, *The Genesis Flood* (Philadelphia: Presbyterian and Reformed Publishing Co., 1966) xxvi.

understanding and explaining unique events such as the origin of species and the formation of our solar system.²⁹ It is quite arbitrary, not to say odd, to stipulate a demarcation criterion between science and non-science which excludes disciplines like biology, geology and cosmology from science, simply because they have an historical (and therefore unrepeatable) element to them. Cosmology is, after all, one of the oldest sciences.

Many people today accept that the philosopher of science, Karl Popper is right in principle in saying that science is concerned with testability. It must be possible to specify, in principle, what data would corroborate a theory and what would falsify it. If there are, in principle, no data which could conceivably count against a theory, then along with Freudian psychoanalysis and Marxism, it would count as non-science, according to Popper. On his demarcation criterion for distinguishing between science and non-science, anything which is unfalsifiable-in-principle falls into the category of non-science. With reference to Popper's view of science, however, it is not uncommon for creationist writers to make a second kind of attack on the scientific status of evolution by claiming that evolutionary theory *is* untestable and unfalsifiable-in-principle. For example

'... man can never test this theory because its workings can never be observed by human beings.'³⁰ [untestable]

'Evolution ... is not subject to test by the ordinary methods of experimental science—observation and falsification. It thus does not, in a strict sense, even qualify as a scientific theory.'³¹ [untestable and unfalsifiable].

Thus, by Popper's definition, evolution certainly cannot be classed as a true scientific theory.³² The difficulty about these claims is that they boomerang because they are inconsistent with other major goals set in many creationist writings. For the bulk of such literature is devoted to trying to show that when evolutionary theory is tested, it *is* found to be false. But if evolution is non-testable and non-falsifiable, this cannot be done and the effort is wasted. Such attacks are mutually incompatible. They involve a having-your-cake-and-eating-it position and, of course, you can't do both without becoming involved in self-contradiction.

Evolutionists, as might be expected, do not regard their theory as

29. E. Nagel, *The Structure of Science* (London: Routledge & Kegan Paul, 1974) 547ff.

30. E. H. Andrews, *Is Evolution Scientific?* (Welwyn: Evangelical Press, 1977) 19f.

31. D. T. Gish, *Evolution The Fossils Say No!* (San Diego: Creation-Life Publishers, 1973) 8.

32. M. Bowden, *The Rise of the Evolution Fraud* (Bromley: Sovereign Publications, 1982) 155.

insulated against possible falsification and some of them are prepared to lay down what they would regard as falsification criteria. For instance, as one writer puts it:

'... the hypothesis of evolution *is* falsifiable by a thousand conceivable observations, for example, finding *Australopithecus* bones in strata from the Mesozoic Era. Evolution, therefore, might be a false hypothesis'.³³

It is, however, simplistic to expect that inconsistencies in major scientific theories cause these theories to be rejected immediately. History does not bear this out. Such a belief is known as *naive falsificationism* as distinct from what is called *sophisticated falsificationism*.

But there is a second hidden boomerang for creationists who follow this notion of falsifiability. For if potential falsifiability is taken as the demarcation criterion between science and non-science or pseudo-science, then where does 'creation science' stand? If 1. 'creation science' has something to do with 'creation'; and 2. 'We cannot discover by scientific investigations anything about the creative processes used by God'³⁴; and 3. 'In a pseudo-science, no experiment which would finally refute a theory can be made ...'³⁵ ... then 'creation science' is unfalsifiable-in-principle and therefore not science, but pseudo-science. Furthermore, to pick up the quotation in 3, a few paragraphs later, if

'The pseudo-scientist ... will only look for evidence which will confirm his ideas, and should he be faced with contrary evidence, will simply provide secondary theories in order to explain them away.'³⁶

... how can the creationist escape the charge of being a pseudo-scientist? The above words were in fact penned about Charles Darwin, but he did extensively draw attention to possible objections to his theory.

A third approach to discrediting the scientific status of evolution has been to quote remarks made by Popper. For example, an article in *New Scientist* publicized a passage from Karl Popper's autobiography, *Unended Quest* in which he said

'I have come to the conclusion that Darwinism is not a testable scientific theory, but a metaphysical research programme ... Now to the degree

33. G. Hardin, 'Scientific Creationism'—Marketing Deception as Truth', in A. Montague (ed.), *Science and Creationism* (Oxford University Press) 165, 1984.

34. D. T. Gish, *Evolution The Fossils Say No!* (San Diego: Creation-Life Publishers, 1973) 25.

35. Bowden, *op. cit.*, 156.

36. *Ibid.*, 156.

that Darwinism creates the same impression [—that an ultimate explanation has been reached], it is not so very much better than the theistic view of adaptation'.³⁷

Quotations like these, in conjunction with the status of Popper as a philosopher, have been seized upon to support anti-evolutionary ideas. What seems to get overlooked is Popper's letter published in *New Scientist*, a few weeks later, in which he said

... some people think that I have denied scientific character to the historical sciences. . . . This is a mistake, and I here wish to affirm that these . . . have in my opinion scientific character: their hypotheses can in many cases be *tested*.

It appears as if some people would think that the historical sciences are untestable because they describe unique events. However, the description of unique events can very often be tested by deriving from them testable predictions or retrodictions.³⁸

Criticisms of the power of evolutionary theory to explain data are part of the bread-and-butter of biologists and philosophers of biology. To pursue a Popperian approach, one does not try to shore up a theory in order to practice science, one tries to knock it down. Its weaknesses are exposed by criticizing it. Then, if the theory escapes disproof (falsification) in a fair test, it stands corroborated and is allowed to retain its position in the catalogue of scientific theories accepted for the time being. There is, as already indicated, a lot more to this notion of conjectures and refutations than such a lightning sketch suggests.

Quite apart from the scientific and philosophical aspects of evolutionary theory, it is sometimes the case that biologists—and others—espouse evolution with a zeal fired by personal, rather than scientific reasons. In Sir Julian Huxley's obituary, Sir Peter Medawar wrote,

... so great was Huxley's enthusiasm for the idea of evolution that he came in his later years to treat evolutionism as a sort of secular religion.³⁹

Like others in his family, Julian Huxley was an outstanding biologist, but he was taken to task by the philosopher Anthony Flew, writing from a non-Christian perspective, for his unjustifiable excursions into a philosophy which did not follow from the biology.

A fourth attack has been mounted on the scientific status of evolution by making an issue of the word 'theory', treating it as though

37. B. Halstead, 'Popper: good philosophy, bad science?', in *New Scientist* 1980, 87 215.

38. K. R. Popper, in 'Letters', *New Scientist* 1980, 87 611.

39. P. Medawar, Obituary—Sir Julian Huxley, *Nature* 1975, 254 4.

it were univocal. But it is not. The word is used in discussions about evolution in phrases like, 'Oh that's just a theory', to suggest that it is uncertain, or mere speculation. But this is not the only use of the word. One philosophical dictionary⁴⁰ lists four meanings. Of these, the third, 'A unified system of laws or hypotheses, with explanatory force' is much closer to the meaning of the way the word is used when referring to the 'theory of evolution'—or for that matter, the theory of gravitation. The fact that we often speak in abbreviated form of 'evolution' or 'gravitation' does not mean we have forgotten that these theories are corrigible, like any other scientific theories, in the light of new data.

A fifth, and rather curious attempt to deny scientific status to evolution amounts to a matter of semantics:

'... The fact is ... that "evolution" as such is not itself a recognized science. A student cannot graduate in such a subject or even, generally, take a course of university lectures in the field.'⁴¹

To deny scientific status to evolution because you 'cannot graduate' in it is to use words in quaint ways. As a Christian Professor of Genetics points out

... evolution is not a subject in its own right but a synthesis of disciplines as wide as biology itself: anatomy and anthropology; biometrics and biochemistry; ecology and ethology; genetics and geology; physiology and phylogeny; and so on. Few people can adequately cover this span, and ... virtually all the criticisms about evolution since Darwin first put forward his ideas have come from genuine misunderstandings.⁴²

Evolution is the underpinning principle of biology. It is, to use Kuhn's expression, the paradigm within which biologists work. But you graduate in 'biology', or some similar term. The odd nature of the use of language in this fifth criticism is highlighted if we replace the word 'evolution' by 'gravitation'. The assertion then becomes 'The fact is ... that "gravitation" as such is not itself a recognized science. A student cannot graduate in such a subject ...' Now of course you don't get bachelor's degrees in gravitation any more than you do in evolution. Gravitation is the underpinning principle of astronomy, as

40. A. R. Lacey, *A Dictionary of Philosophy* (London: Routledge & Kegan Paul, 1976) 110.

41. E. H. Andrews, *Is Evolution Scientific?* (Welwyn: Evangelical Press, 1977) 2.

42. R. J. Berry, *Neo-Darwinism*, The Institute of Biology's Studies in Biology no. 144 (London, Edward Arnold, 1982) 1.

43. S. Baker, *Bone of Contention: Is Evolution True?* (Welwyn: Evangelical Press, 1976) 28.

evolution is of biology. But you are awarded, say, a BSc Honours degree in Astronomy, not gravitation; in Biology, not evolution.

Fog Warning!

Many of the issues involved in a study of creation and evolution are complex. But apart from the unavoidable difficulties inherent in exploring a complicated topic, there is an additional and unnecessary one. Some writings tend to enshroud in fog, issues which are nothing like so uncertain as they are made to sound. This smoke screen often seems to take the form of asserting that, since there are *some* unanswered questions or anomalies about current professional views in biology, geology or cosmology, therefore *all* is built on insecure foundations and open to serious doubt. There is a need to be alert to the sweeping nature of such claims, examples of which are given below. Such literary devices come close to being 'arguments from ignorance', in which a lack of knowledge about the weight of evidence is used to imply that the opposite is the case. Science is 'unfinished business' and all of its branches have their own collections of problems, inconsistencies and apparent paradoxes. This does not mean that they are all in disarray and thoroughly untrustworthy in the way that the examples below tend to imply.

1. Biology

'When the theory of evolution was first put forward, it seemed to some scientists to be a reasonable theory and they therefore set out to test it. The evidence collected over the past 100 years, however, does not support that theory and in fact shows it to be quite unacceptable.'⁴³

'It is not too difficult to demonstrate that the entire concept of evolution is not only anti-Biblical but also utterly unscientific.'⁴⁴

It may be wondered why academic biologists all over the world, Christians and non-Christians alike, are pursuing successful ('progressive') research programmes within an evolutionary paradigm.

2. Geology

'... uranium dating is untrustworthy, and potassium-argon dating has large question marks against it. How, under such conditions, can an 'accepted' age of the earth be fixed at all?'⁴⁵

'... uniformitarian geology is based upon a less secure scientific

44. H. M. Morris, *The Twilight of Evolution* (Grand Rapids: Baker Book House, 1963) 28.
45. Baker, *op. cit.* 23.

foundation than is normally admitted. Radiometric dating is far more problematical than most people appreciate and the old geological column (based upon arbitrary sedimentation rates) remains the touchstone of geological time. This time-scale is, on scientific considerations alone, likely to be greatly exaggerated. Although, therefore, the uniformitarian approach is the simplest, it is scientifically insecure. The facts of observation are equally consistent with a "young earth" interpretation.⁴⁶

With reference to the first quotation, the pitfalls to be avoided in uranium-lead and potassium-argon dating are well known by geochronologists. But to suggest that, in the absence of these methods of dating, no estimates of the age of the earth can be arrived at, is perverse. On the matter of uniformitarianism, referred to in the second quotation, comments have already been made. The last sentence is at complete variance with the informed consensus of academic geologists.

3. *Cosmology*

One of the intractable problems for a young-earth view is a consequence of the enormous distances of the fixed stars and the finite velocity of light. It arises because, given that light travels at 300,000 kilometres per second *in vacuo*, the light which reaches us and enables us to see distant stars as stars, left them far longer ago than the maximum of 20,000 or so years that recent creationists maintain. Hence creationists have tried to show: 1. that light could have reached us more quickly than is currently thought; either because of the configuration of space or because light travelled more quickly in the past; and/or 2. that the farthest stars are relatively near, say closer than 20,000 light-years, as suggested below.

It needs to be remembered that the vast distances quoted are not known with certainty. This point is illustrated by the controversy over the position in the universe of the quasars. While most astronomers believe that some of these objects are as much as 10 billion light years away, some have always maintained that they are in fact quite close to us. Recent evidence supporting the latter position is quoted in an article in the *New Scientist* (Vol. 68, p. 513), where we are told that "The whole of quasar theory is built up from so little direct evidence . . . that it is possible that all these ideas are wrong." Caution is thus needed when considering the ages and distances claimed by modern astronomy.⁴⁷

The impression given by writing of this kind is that astronomical distances are so uncertain that they could just as well be as small as

46. E. H. Andrews, *God, Science and Evolution* (Welwyn: Evangelical Press, 1980) 127.

47. Baker, *op. cit.* 27.

creationists require. If one goes to the actual reference, it turns out to be a one and a half column speculation entitled 'Could quasars be local after all?' Written eleven years ago, and referring to some earlier experiments, it raised the question whether quasars are closer to us than was then thought. The 600 word report raised a perfectly reasonable question—and did little more. It came to no conclusions and quasi-stellar objects (QSO's) are still believed to be among the most distant objects in our universe. The quoted comment 'that it is possible that all these ideas are wrong' refers only to quasar theory and has not since been substantiated. It does not refer to *all* stellar distances. But even if the quasars did turn out to be local, it leaves untouched the enormous distances of the vastly more numerous heavenly bodies which are not QSO's.

Our final example of a sweeping generalization, which concerns no less a subject than the laws of science themselves.

4. *The laws of science*

So fundamental to science and so well-attested is the invariance of the velocity of light that physicists are inclined to wince at suggestions that it might have changed with time. But even more astonishing is the comment that

'It is interesting to notice that the fixity of the fundamental laws of science is no longer accepted, even by scientists, with the assurance that it once was.'⁴⁸

and again,

'Recent scientific thinking, though speculative, admits that even the basic laws of physics may not be immutable in time. If this line of thinking is ever confirmed it would provide independent evidence of miraculous (non-contemporary) process in nature.'⁴⁹

We need to be clear about what is being suggested. Scientific laws, like Boyle's law and Ohm's law describe what is found to happen in the natural world. If they turn out not to be good descriptions, they have to be changed to accommodate the more accurate data. This is all part of the scientific enterprise. But the writer is not referring to that. He is implying that the fundamental laws of the physical world, imperfectly described by science, might be changing. Such a suggestion is quite breathtaking. If the assumption that the 'underlying laws of physics' are invariant (uniformity) is abandoned, as distinct from our imperfect scientific laws which

48. E. H. Andrews, *God, Science and Evolution* (Welwyn: Evangelical Press, 1980) 126.

49. *Ibid.*, 127.

describe them, then science stops instantly. It cannot be practised. The world would be chaotic, not orderly. As such, it would not be amenable to generalizations about regular behaviour. Furthermore, any changing of the laws of physics with time would certainly not 'provide independent evidence of miraculous (non-contemporary) process in nature' except in the tautologous (and trivial) sense of being entailed by the writer's definition of 'miracle'. From 1. his statement 'By definition, a miracle involves the supplanting of natural process and physical law';⁵⁰ and 2. his suggestion that the laws of physics may vary with time; it might appear possible that 3. many more events could be classed as miracles.

But there is a very high price to pay for this appearance of possibility. If the laws of physics are not invariant, the fixed baseline that enables us to know when 'the supplanting of . . . physical law' has taken place has been removed. Thus there is no way of knowing whether a miraculous event has occurred or not. The word 'miracle' has been evacuated of meaning.

Two sentences, taken from the *New Scientist*, are all that is offered in support of this inordinate notion of the mutability of scientific laws. They are

It is crucial to our existence that the nuclear force is stronger than the electromagnetic force. If these forces had the same strength in the heat of the "big bang", as some theories predict, then the electromagnetic force weakened, and the nuclear force strengthened as the Universe cooled, yielding the forces experienced today.⁵¹

On referring back to the *New Scientist* it turns out that the quotation was a caption beneath a diagram illustrating the balance between the fundamental forces of nature, without which balance we should probably not be here. The article was about elementary particles and the origins of matter in the 'Hot Big Bang' at temperatures almost beyond our imagination. To suggest that speculations about how the fundamental forces of nature might have related before and after the first 10^{-35} of a second of the Big Bang could justify saying that 'the fixity of the fundamental laws of science is no longer accepted, even by scientists, with the assurance that it once was', is grossly misleading.

Postscript

'Only a very great and generous mind can champion truth and point out

50. *Ibid.*, 99.

51. F. Close, 'Particles play the generation game', in *New Scientist* 1979, 84 703.

the invalidity of established tenets without being carried away by a crusading zeal into injustice to some sound insight underlying the more patent absurdities.⁵²

A quotation like this is a good one to try to keep in mind when making a critique of this kind. My intention has been to highlight a few of 'the more patent absurdities' in the hope that these may quietly disappear from the debate. At the same time I have made a constant effort not to be 'carried away by a crusading zeal into injustice to some sound insight'. But lest it should seem that creationism has received overmuch criticism in its attempts to provide a biblical reply to evolutionism let me rehearse some of those sound insights which the creationist movement stands for.

It has rightly drawn attention to the fact that there is a world-view which claims evolution as its justification. But where atheism attempts to use evolution as a crutch, the crutch needs to be shown to be unable to provide such support. Creationists have also stood firm for biblical inspiration, as I do myself. They have re-emphasized that science is not static but dynamic and changing. Rightly have they sought to take the Christian challenge into the debating chamber and the media. They have reiterated that man is sinful and has a tendency to look for possible ways of justifying those courses of action which appeal to him and excusing those darker deeds for which he wishes to avoid blame. Furthermore, they have stressed that this is a created world, arising from the plans and purposes of God, not from a cosmic accident. As such, it exists for the glory of God. Nevertheless, I have a grave sense of disquiet about a great deal of the creationist apologetic. My feelings of unease have grown, rather than diminished, while researching the literature.

Many staunch evangelicals are very concerned about this. To say that the integrity of the writings is very much open to question is not in any way intended to imply intentional dishonesty or deception by any writers. But the lack of logical soundness in the arguments, the factual inaccuracy of the data and the inconsequent nature of so many of the conclusions which are drawn are deeply disturbing. Equally disquieting is the way in which snippets of material from standard scientific sources are brought together and claimed to furnish authoritative support from recognized professionals for a young-earth position. Frequently, these extracts turn out to be improperly understood and taken out of context. Extensive references are given, in such

52. S. Ratner, 'Evolution and the Rise of the Scientific Spirit in America', in A. Montagu (ed.) *Science and Creationism* (Oxford University Press, 1984) 411.

creationist writings, particularly to in-house publications. Where standard scientific works and popular science journals are quoted they do not always appear, when traced back to their sources, to bear out the conclusions which are claimed to follow from them. Often it seems to be the case that the intentions of the original authors have been misunderstood. All this is a matter for grave concern, given the Christian commitment to truth and the responsibility which writers have to other people who go to them for information. If one goes to a well-stocked Bible shop one usually finds many volumes of this kind of literature under the 'Science and Christianity' section. Many of the publications come from America, but a growing number, following the same general pattern, come from British writers. Their style is similar and the subject matter repetitious.

The worrying question is, what message is being communicated? If it is that the Bible is to be believed because of creationist writings like these, then trouble lies around the corner, at least for some Christians; it may well be those Christians whose 'faith' is strengthened because they uncritically accept what they read or hear, not being in a position to check out the subject matter. It is especially likely to cause problems for students who will find their studies in biology, geology, astronomy and a host of other disciplines to be completely at variance with much of what is said in creationist writings. If such students are firmly convinced that the creationist position is a faithful reflection of the Bible then they are likely to 1. abandon their studies; or 2. abandon beliefs in the trustworthiness of Scripture; or 3. live in a state of uneasy, perhaps paralysing, tension.

Some of these students experience strong pressures within their churches, even to the extent of being told that, to be a good evangelical, they have to adopt an anti-evolutionary stance. For one young convert, who was referred to Paul's letter to the Philippians, it was called 'bowing the knee'. For another, the unChristian condition imposed upon him, for continuing as a member of his House Church, was that he should accept the teachings of *The Genesis Flood*. For a young Christian—and for some older ones too—the following kind of equivocation can be very confusing:

'The Christian therefore cannot be an evolutionist; he can only be a creationist. For a Christian to reject that God is the Creator is to deny one of the fundamental truths, and hence the authority of Scripture.'⁵³

53. A. J. M. White, *What About Origins?* (Newton Abbot: Dunestone Printers, 1978) 13.
54. H. M. Morris, *The Twilight of Evolution* (Grand Rapids: Baker Book House, 1963), 13. f.

The potential confusion arises because of the ambiguity implicit in the word 'creationist'. For while it is true to say that 'all creationists believe in creation', it is not true to say 'all and only creationists believe in creation'; other Christians do as well. For the reasons spelt out earlier, there is no logical—and in many Christians' view no biblical—contradiction in an 'evolutionist' believing in creation. Creationism is a 'package' consisting of a belief in divine creation plus a whole additional set of beliefs relating to times and mechanisms of origins. There is no logical contradiction involved in accepting the former while questioning the latter.

Some creationist writers reply in similar form and say that evolution, too, is a 'package':

Evidence continues to accumulate that it [evolution] is rather an anti-Christian, anti-theistic way of thought, a system rather than a science.¹⁵⁴

But this brings us full circle to a key point which was made early on and subsequently re-emphasized. That is, that it is essential for Christians to recognize the distinction between (1) the scientific theory of evolution and (2) the philosophical parasites which have become attached to it. Taken together, these make up *evolutionism*. Evolutionism is a 'package' consisting of a belief in evolution plus a whole additional set of beliefs which may include ideas about moral progress, atheism, reductionism, naturalism and so forth. It is to this additional set of beliefs that Christianity is implacably opposed. There is a Christian task to be performed in society, to challenge these toxic additives, where they occur. They get smuggled in to a whole range of political and legislative decisions, as well as into education. They appear in the conclusions which are drawn because they were present in the original, and often unstated, presuppositions.

Creationism has recently attracted a lot more attention from the scientific and philosophical communities. Some of the literature has been polemical and has amounted to little more than certain writers taking an opportunity to give vent to anti-Christian feelings. Such writings often blur the difference between creationism and creation, so that by attacking the former they conclude that they have disproved the latter. But much of the literature is scholarly and carefully argued. The points made are well worth noting. Quite often it seems that non-Christian contributors have seen more clearly than some Christians that evolution need not present a threat to the doctrine of divine creation.

The conclusion, then, is that, in principle, both creation and evolution may be accepted without inconsistency or disloyalty to Scripture. Furthermore, the grounds on which each may be accepted

are distinct. Creation-by-God can only be known by revelation, through the Scriptures. Evolution, on the other hand, stands or falls with the scientific evidence. Creationism and Evolutionism, however, are different matters and need to be carefully distinguished.

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