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GENERAL EDITOR: Dr. A. B. Robins



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Editorial

The Victoria Institute was founded in 1865, and obviously, right from the start, the Creation-Evolution debate was a relevant topic; the *Origin of Species* had been published in 1859. Now, in 1986, we find the same issue being discussed with much fervour, but still with no definitive conclusions. It is significant that half of the papers in this issue deal with this matter; an indication of the interest which it still arouses. The Evolution-Creation debate also gives rise to much passion in the holders of the views expressed. The three papers referred to deal with the cultural and historical background of the creationist viewpoint and will be necessary reading for anyone wishing to get behind the 'smokescreen' which often obscures the issue. Marsden's article, reprinted in *Faith and Thought* (1983, 110, 124) is also worth re-reading for this purpose.

The dualist view of mind-brain is raised again by Dr. Cook, as he discusses the 1984 Reith Lectures and, allied to this, readers might be interested to consider a computer-software analogy to explain the way God deals with his creation. This paper is shorter than most, but the Editor considers it better to include it in the Journal rather than the Newsletter. At least one reader has made a plea for shorter, more easily assimilable papers occasionally. It would be helpful to have comments from readers on this point.

Finally, the matter of healing is always relevant in our world, and the contribution on this topic summarises much that has been written elsewhere, usually at greater length.

In conclusion, a reminder that our next issue will be a Memorial to our late Editor, Dr. R. E. D. Clark. It would be very helpful indeed if any further contributions concerning Robert's life and work, any anecdotes, etc., could be sent to the Editor as soon as possible.

Our Contributors

W. Grainge Clarke (Senior Lecturer in Science, School of Education Nepean College of Advanced Education, Kingswood, New South Wales)
The World-View as it affects Scientific and other Knowledge, with Special Reference to the Theory of Evolution

Michael B. Roberts (St. Nathanael's Vicarage, Walton, Liverpool)
The Roots of Creationism

Reginald S. Luhman (Teacher in Southend-on-Sea, Essex)
The Evolution-Creation Controversy in Perspective

Robert R. Cook (Scott College, P.O. Box 49, Machakos, Kenya)
Some Reflections on the 1984 Reith Lectures: Mind, Brain, and Science

Fergus McInnes (A Scientist in Edinburgh, Scotland)
God and the Ordered Universe: A Computer-Software Analogy

E. L. Larson, and S. M. Larson (Nurse Scholar, and Director of Nuclear Medicine, University of Pennsylvania, and National Institute of Health, Maryland)
A Philosophy of Healing from the Ministry of Jesus

W. Grainge Clarke

The World-View as it affects Scientific and other Knowledge: with Special Reference to the Theory of Evolution

Clash of world-views

The growth in the creation science movement and its very vociferous attacks upon the theory of evolution (and also upon a number of other aspects of science including the geological time scale, plate tectonics and even the concept that the velocity of light *in vacuo* is constant) has led to a vigorous response in some scientific circles. In Australia there has been formed the Australian Association for the Protection of Evolution. In a number of scientific journals there have been articles and letters vigorously attacking 'Creation science'. The Australian Science Teachers Journal of March 1985 contains articles of this type. It is to be regretted that much of this vigorous discussion has produced more heat than light. Both sides have made claims that go far beyond the evidence. The case for evolution has been argued with almost religious fervour rather than in the best traditions of the sciences. The reason for this regrettable heat is that the basic argument is not, as may appear, a question of origins but a confrontation of two mutually exclusive world-views.

However it is over-simplistic to equate (as would the extremes on both sides) the creation science position with the Christian world-view, and the evolutionary position with the materialistic world-view. This over-simple approach ignores the nature and structure of science and the hermeneutic and exegetical problems associated with the early chapters of Genesis.

Any attempt to elucidate the problem involves a consideration of the philosophical structure and restraints under which science works. The fact that these are rarely mentioned in scientific works does not make them any less important.

All people and all societies have some type of world-view. This world-view may be held relatively constant over long periods of time or it may be in a constant state of change.

Contrasting world-views become evident when a person moves from one culture, or even a sub-culture, to another. The explanation of the cause of disease in a European culture is very different from that in a primitive African tribal culture. These differences do not result

from the relative intelligence of the two peoples but from their possessing totally different world-views.

The world-view and modern science

Although much science today is identified with a materialistic world-view, it was the Christian world-view that enabled modern science to develop. This was because it provided a suitable intellectual environment for scientific endeavour. This is true notwithstanding the many attacks made by the Church on the work of the early scientists. Hooykaas states:

Modern science arose when the consequences of the Biblical conception were fully accepted. In the 16th and 17th centuries science was led out of the blind alley into which it had got through the philosophy of Antiquity and the Middle Ages. New horizons were opened. The picture of the world as an organism was replaced by that of the world as a mechanism. It is not generated but *made*; it is not self supporting, but needs maintenance.¹

Primarily, it is the belief that God, the Creator, is a God of order that makes it reasonable to suppose that His universe would be orderly and hence possible to investigate. This made modern science possible. The scientific assumption of the uniformity of nature has its ultimate justification in the Hebrew-Christian belief in the orderliness of God. Experimental science became possible because the Christian belief in God's transcendence meant it was not irreverent to experiment with the creation, God being separate from His creation. Experimenting with nature becomes blasphemy in a pantheistic religion, where everything is god.

In Western society today there are competing world-views. These competing concepts have been carefully analysed by Francis Schaeffer in *He is there and He is not Silent*.² There is the traditional Christian world-view based upon a belief that all things have their origin in an Intelligent, Infinite, Personal Creator. Opposed to this view is the idea that all things have their origin in impersonal non-intelligent matter-energy plus time plus chance. The understandings of life based on these contrasting world-views are naturally very different. What is not always realised is that these different world-views also affect the understanding of all knowledge, including

1. R. Hooykaas, 'A New Responsibility in a Scientific Age', *Free University Quarterly*, 1961, Vol.8, pp.78-97.

2. Frances A. Schaeffer, *He is there and He is Not Silent*, London, Hodder and Stoughton, pp.15-24, 1972.

scientific knowledge. This intellectual climate determines not only what theories are acceptable but even how sense-data are interpreted. It is equally true that scientific and other concepts may influence the contemporary world-view. It is a two-way process.

There is a widespread belief that scientific knowledge is totally objective in nature and hence not influenced by the current world-view. That is, 'scientific fact' is totally objective knowledge and so is quite independent of extraneous factors such as the personal views of the scientist or even the generally accepted opinions of the scientific community or the populace at large. This may seem to be desirable, but it is simply not possible. *All* knowledge involves presuppositions and these presuppositions are derived ultimately from the world-view. If nothing is assumed, nothing is proved. Presuppositions, by their nature, cannot be either proved or disproved, but they can be examined for their internal consistency and their consistency with the world-view of those who assume them. Professor David F. Horrobin, Professor of Medical Physiology at University College, Nairobi realises that the validity of science depends upon presuppositions. In his book, *Science is God*, he states:

Every scientist must make two assumptions which are quite unproveable, even in theory. The first is that the universe is orderly and the second is that man's brain is capable of unravelling the mysteries of that order.³

In the early 1960s the writer listed a number of important presuppositions in science. No exhaustive list is possible but some of the important ones that the writer listed then are:⁴

- (1) The existence of the scientist, of other scientists, and of the universe.
- (2) That the human mind is capable of rational thought.
- (3) The Uniformity of Nature—that is to say, if an identical experiment to that which was carried out today . . . had been carried out yesterday, 10,000 years ago or in a hundred years time, the results would be identical. That is, the universe is orderly.
- (4) That the Universe is coherent, and, in part at least, intelligible. This is closely related to assumption (2) above.
- (5) That the scientist is capable of interpreting the sense data which he received from the world outside. (This point needs further

3. David F. Horrobin, *Science is God*, Aylesbury, Medical and Technical Publishing Co. Ltd., p.13, 1969.

4. W. Grainge Clarke, *The Continuing Conflict*, R.S.C.F. Paper No.2, Sydney, Inter-Varsity Fellowship of Evangelical Unions (Australia), [1965], pp.9-10. This paper was the result of a series of studies in Christian Apologetics given to the Melbourne University Evangelical Union Science Faculty Group about 1960.

explanation. Even the sense of sight needs training and experience to interpret the data received by the eye. In general we perceive what we expect. If one is confronted with an entirely new situation then the data are often misinterpreted. The difficulty that first year students have on first using a microscope is a well-known example of this. Likewise, when English painters first tried to paint Australian gum trees, they represented them in the forms of the familiar European trees, presumably because this is what they perceived, because this was how they expected trees to appear.)

- (6) Certain ethical qualities of honesty, respect for truth, etc., in the observer.
- (7) Certain special presuppositions directly related to the subject in hand, e.g. the axioms of geometry.

The first six of these presuppositions are only defensible on the Christian world-view that was current at the time modern science was developing. Most of the early scientists, for example Galileo Galilei, Nicolaus Copernicus, Isaac Newton, were practising Christians, or at least held the prevailing Christian world-view, so it is to be expected that they would work within the usually unexpressed, presuppositions based upon such a world-view. On the now popular materialistic view, none of these first six presuppositions is justifiable. It is not possible to discuss this in detail here but the writer has developed this point in much more detail elsewhere.⁵ The change in world-view away from the Christian position has produced an interesting problem. To use Francis Schaeffer's terms it is a change from modern science to modern, modern science.⁶ This involves the introduction of a changed presupposition, a change from a belief in uniformity of natural causes in an *open system* to uniformity of natural causes in a *closed system*. This closed system leaves no room for any action upon it either by God or even ultimately by intelligent man. 'Under the influence of the presupposition of the uniformity of natural causes in a closed system,' as Schaeffer says, 'the machine does not merely embrace the sphere of physics, it now encompasses everything.'⁷ Of course this changed presupposition is inconsistent with the earlier presuppositions. It makes man part of the machine. Valid human reason has become impossible. What passes for human reason is on this view the product of a non-intelligent machine which

5. W. Grainge Clarke, 'An Investigation into the Nature and Structure of Science as it Affects Christian Apologetics' (Master of Arts thesis, Pacific College of Graduate Studies in association with William Carey International University), 1984.

6. Francis A. Schaeffer, *Escape from Reason*, Leicester, Inter-Varsity Press, p.36, 1968.

7. *ibid.* p.36.

itself is only the product of matter-energy plus time plus chance. 'Unless human reasoning is valid', states C. S. Lewis,⁸ 'no science can be true'. The change in the world-view has undermined the presuppositions that alone make science, and indeed all knowledge, possible.

The influence of the world-view is not limited to its effect upon the presuppositions of knowledge. It determines how the data are interpreted and what theories are acceptable. The classical view of science, developed by John Stuart Mill,⁹ is that scientific laws and theories are based upon empirical data by the logical process of induction. These theories and laws are then tested by deduction. This view has received a severe set-back since the publication of Popper's *The Logic of Scientific Discovery*. Popper claims that not only are theories and laws not formed by induction, but that the scientific observations themselves are theory-dependent and are reported in theory-dependent language. Indeed Popper says in regard to such observation statements (which he calls basic statements) 'Basic statements are accepted as the result of a decision or agreement, and to that extent are conventions.'¹⁰ If this is true then the decisions cannot be totally objective. Thus there is reason to suspect that these decisions could be influenced by the world-view of those who make them.

Theories can never, on Popper's view, be verified, but good scientific theories must expose themselves to the risk of falsification, without ever being actually falsified. However As Chalmers¹¹ points out, because observation statements are fallible,

Theories cannot be conclusively falsified because the observation statements that form the basis for the falsification may themselves prove to be false in the light of later developments.

If this is true how can competing theories be evaluated? The conventional answer would be to apply Occam's Razor, and so use the principle of simplicity, but even here there is a subjective element. Ultimately the fate of theories also rests on decisions of the scientific community rather than upon totally objective observation and experiment. Popper concludes, "Thus it is *decisions* which settle

8. C. S. Lewis, *Miracles*, London, Geoffrey Bles, p.26, 1947.

9. John Stuart Mill, 'A System of Logic: Ratiocinative and Inductive, London. Reprinted in J. J. Kockelmans (Ed.) *Philosophy of Science*, The Historical Background, New York, Free Press, 1968.

10. K. R. Popper, *The Logic of Scientific Discovery*, Revised Edition, London, Hutchins, p.106, 1968.

11. A. F. Chalmers, *What is This Thing Called Science*, St. Lucia, University of Queensland Press, p.60, 1978.

the fate of theories.¹² For him the decision affects the acceptance of *singular* statements against which the theory can be tested, rather than the universal statement to which the conventionalist would apply the process of decision. On either view the ultimate basis of these decisions must depend, to a considerable degree, upon the usually unstated, world-view of the scientific community.

The danger of overstating the case must be avoided. Theories are a very important aspect of science. Many theories (for example, the Kinetic Molecular theory of gases) explain so many phenomena it would be strange if they were not a reasonably close approximation to reality.

The materialistic world-view, that all that exists is a product of matter-energy plus time plus chance is the present dominant world-view in biological circles. It is accompanied by the presupposition that the universe is a closed system. It must then follow that any theory of origins that involves the postulation of an external Intelligence *must* be rejected, not because it has been disproved, but because it is unacceptable to the world-view that is prevalent in much of the scientific community. On the other hand a theory that attempts to explain everything in terms of matter-energy plus time plus chance, as does the New-Darwinian theory of evolution, will be judged to be acceptable providing this is the only available alternative to a Theistic view, even though it may contain a number of yet unanswered problems. Thus, for reasons that are determined more by the world-view than by any objective evidence, the scientific world is forced to support a very mechanistic form of evolution. This is despite the fact that this atheistic conclusion makes nonsense of the very presuppositions that alone make any science possible. This is clearly a recipe for self-destruction by science, leaving only technology. Indeed there is already evidence that this is happening. Kuhn's¹³ disregard for any idea that science is progressing toward ultimate truth may well be an expression of this breakdown. Modern science owes its origin to the Christian world-view, and is itself a Christian pursuit. Further there are good reasons to believe that it cannot long continue to exist in a society whose world-view is opposed to the world-view that gave it birth.

On the other hand, the creation scientists' rejection of huge amounts of scientific data because they do not immediately fit a very limited and specialised understanding of what is meant by the Christian concept of creation is equally disastrous for their position.

12. K. R. Popper, *op. cit.*, p.108.

13. Thomas S. Kuhn, *The Structure of Scientific Revolutions*, Chicago, Chicago University Press, p.171, 1974.

The creation scientists usually insist on a literal seven days of twenty-four hours for creation. Though they rarely state anything in regard to mechanism, the impression is given that little or no mechanism was involved.

The concept of creation

It is imperative that the Christian concept of creation be expressed in a more adequate manner. Creation *ex nihilo* involves the concept that all things, including not only matter-energy but also space and time, have their origin in the creative activity of the Transcendent Infinite-Personal Mind that we call God. Hence *all* mechanisms are His work. It is less true to say that God uses mechanisms to create than to state that He creates mechanisms to effect His purposes. Since time is part of the creation, God cannot be limited by it. Because of this, and the problem of giving an objective meaning to time during the period of creation, it may be that the use of seven days in Genesis to present God's creative activity is best viewed either as an accommodation, by God, to the limitations of man's mind or some literary device, the nature of which is still open to further research. What can be asserted is that the God who created space and time is not limited by either, does not exist in either, but is Sovereign Lord of both.¹⁴

The creation science school has problems very similar to their opponents. Their world-view is so limited that they feel obliged to reject any view of origins that does not square with a very restricted exegesis of Genesis. Hence it is the existence of two opposing world-views that is at the base of the argument.

Opposing world-views in relation to the data

Neither the materialistic world-view nor the rather limited interpretation of the Christian world-view of the creation scientists permits an hypothesis that does justice to all the available data. The creation science position has to be defended by an immense amount of special pleading. This can easily be illustrated by their fervent defence of the young earth theory. Astronomical data indicate that some other galaxies exist at distances of thousands of millions of light years from the earth. In order to accommodate this to a date for creation of the order of 4000 B.C., the velocity of light is presumed to have been very much faster in the past. There is no good evidence that the velocity of light has changed from near infinity to its present value in the last 6000 years. The other implications of this view as it

14. Exodus 3:14, Psalm 90:2, 4, John 8:58, 2 Peter 3:8.

affects the mass-energy conversion, quantum mechanics etc. are enormous. Several writers have shown^{15, 16, 17} that the attempt to explain most of the sedimentary deposits of the world in terms of Noah's flood is almost impossible to maintain in the light of the field evidence.

The energy-matter, plus time plus chance world-view of the materialistic scientists presents even more devastating problems. As has already been discussed, it removes the only ground for the reasonableness of the presuppositions that lay behind scientific knowledge. In addition it necessitates arguments that approach special pleading in order to defend a number of observed phenomena, including the very numerous cases of convergent evolution that are known to occur. The convergence in eye-structure in the octopus and the vertebrates is an outstanding example. There is no possibility of a common ancestor possessing this structure on any evolutionary theory. Yet, if they had occurred in animals belonging to the same class they would have been considered to have been homologous. The occurrence of trachea tubes in insects, millipedes, centipedes, mites and ticks, phalangids, and certain, but not all, families of spiders would again appear to involve, possibly several cases of convergence. Any common Arthropod ancestor of all these groups would have almost certainly not have been air-breathing. The convergence in the structure of the head, including the teeth, between the marsupial *Thylacinus cynocephalus* and the dog is quite remarkable. Again no common ancestor could have possessed these features. Convergence is usually explained in terms of selection pressure determined by the ecology. This is a possibility if the necessary mutations are available for selection in both cases. However, as convergence is not an unusual phenomenon and some of the structures concerned are very complex, the probability of it happening so often by a purely chance mechanism is minute and would be better explained if the possibility of a Creative Intelligence behind any mechanism were an acceptable one.

There is increasing evidence for the existence of a large number of other types of phenomena, both from Christian experience and even from anti-Christian sources, that cannot adequately be accounted for by the current materialist world-view. The only responses permitted by this world-view are either to deny the existence of these

15. Bernard Ramm, *The Christian View of Science and Scripture*, London, The Paternoster Press, p.126-129, 1955.

16. A. G. Fraser, 'The Age of the Earth', in Derek Burke (Ed.) *Creation and Evolution*, Leicester, Inter-Varsity Press, pp.17-41, 1985.

17. See also the report of the debate in *Faith and Thought: Journal of the Victoria Institute*, 1985, 111, pp.81-84.

phenomena or, where possible, to attribute the supposed evidence to mistaken observation or the ravings of an unsound mind.

An approach to the present situation

The opposing world-views of the contending parties prevent a careful evaluation of each other's positions. It also makes it unlikely that any light will emerge as this issue is debated in the press and elsewhere. However there is no valid reason why a more comprehensive Christian world-view should not make possible a general integration of all available data. Some of the main aspects of such an approach must now be considered.

Scientific knowledge, while of considerable significance and generally reliable, is incomplete and by its very nature, is in constant change. Theological truth, if it is to be truth at all, must be unchanging. However while Scripture is the inerrant word of God, our present exegesis of it is neither inerrant nor complete. Thus any attempt to correlate existing scientific knowledge and Scripture is at best a temporary solution to the problem because it must be limited in nature and subject to change as new research is undertaken in both areas.

While it is never possible to have an adequate concept of God, it is most important to have a concept of God that is the least inadequate available. The mental concepts that gave rise to the depiction of God as a Super Man, found for example in the illustration of Genesis 1 in a sixteenth-century Bible printed in Venice,¹⁸ must be totally rejected. As has already been asserted, the Creator of all things is not limited by his creation. Time and space, mechanisms and all the properties of matter are His creation. Thus He is totally independent of them. If absolute chance exists, even at the sub-atomic level, and this is still extremely doubtful, this too must be viewed as God's creation. The chance nature of certain biological processes, including the mutation process, is best understood in the light of Donald MacKay's statement: "Chance" in science is not the name of a thing or agent, least of all of a *cause* or *source* of anything; it stands for the *absence* of an assignable cause'.¹⁹ It can never be justly invoked as a mechanism to eliminate Divine activity from any event, as some biologists have attempted to do.

If the materialist world-view is correct, there exists no Intelligence

¹⁸. Reproduced in Alvin Nason and Robert L. Dehaan, *The Biological World*, New York, John Wiley and Sons, p.634, 1973.

¹⁹. Donald M. MacKay, *Science, Chance and Providence*, Oxford, Oxford University Press, p.33-34, 1978.

behind the universe, hence there is no ground to assume that rational thought is possible or that the concept of the uniformity of nature is anything more than wishful thinking. That is, all knowledge including scientific knowledge is impossible. Science is without adequate foundation and must eventually collapse, because it was the Hebrew-Christian concept of an infinite personal Creator that provided the world-view that made modern science possible. If science is to survive, in the long term, a Theistic world-view is essential.

If the starting point for the reconciliation is an evolutionary approach and an attempt is made to fit God in, then there is a great danger of a 'God of the Gaps' apologetic. This will do justice to neither science nor Scripture. If, on the other hand, the starting point is an Infinite Personal Creator, who made *all* things including time and space and *all* mechanisms, then there is no reason why He should not have used a large variety of mechanisms, including not only very extensive evolutionary processes, but perhaps also what we would describe as genetic engineering and cloning to fulfil His creative purposes. Man, who was created in the image of God, uses devices to carry out his plans, why should not God? It is not unreasonable to assume that anything man can do, God can do better. Today men prepare elaborate computer programmes to execute their purposes. The programmers are responsible in a legal and moral sense for the outcome of the programme. Thus the programme is merely another aspect of their activity. So it would be if God carries out His activities by creating any mechanism whatever. In Hebrew thought God is seen as directly responsible for the outcome even when the mechanisms are clear, and may even involve man.²⁰

Creation is not an alternative theory to evolution. The concept of creation in no way forms part of the content of natural science, nor should it. Creation is the base of all knowledge because it alone provides the justification for a number of assumptions, otherwise absurd, including such basic assumptions as: the human mind is capable of rational thought, and that the universe is orderly and to some extent comprehensible. Creation stands in its own right, even if extensive evolution has occurred. C. S. Lewis states, '*no thought is valid if it can be fully explained as the result of irrational causes.*'²¹ Therefore for any scientific theory, including the theory of evolution, to be valid, the human mind must be capable of rational thought. This can only be so if the mind is itself ultimately the product of an Intelligent Creator.

While no complete simple solution to the problem of the relationship

20. 1 Kings 12:24.

21. *op. cit.*, p.27.

between God's revelation in Scripture and His work in the natural world is to be expected by man with his limited knowledge, nevertheless there is no necessity to dismiss the Scriptures as the materialists do, or the scientific data as the creation scientists are in danger of doing. Because of the pervading nature of the opposing world-views it must be expected that this approach that sees creation as a basic *sine qua non* of all knowledge while leaving open the possibility of an evolutionary mechanism as an important part of the action of creation will be rejected by both sides. However this rejection will be on the basis of the respective world-views, and not because of the evidence, but in spite of it.

It remains true:

Great are the works of the LORD,
they are pondered by all who delight in them.

Psalms 111:2 N.I.V.

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The Roots of Creationism

A Definition: 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.

Until a few years ago, most evolutionists thought that the final battle between the forces of ignorance—religion—and the forces of wisdom—science—had been won convincingly at Dayton, Ohio in 1925 when, despite the legal victory of Jennings Bryan, the real victors were Scopes, Darrow and the evolutionists.¹ Today the battle is in full swing again with more Monkey Trials in the USA and Creationism (arguments for and against) littering the pages of *Nature*, *New Scientist*, *The Times*, *The Guardian*, *The Daily Telegraph*, *Science* and even the *Radio Times*.

The history of the recent revival of Creationism is moderately well known. Most Creationists acknowledge their debt to the seminal work, *The Genesis Flood*, by Morris and Whitcomb published in 1961. The progress (or evolution) of Creationism since then has been well documented by Ronald Numbers.² In 1963, the Creation Research Society was formed to halt the evolutionism of the American Scientific Affiliation, and by the end of the decade *The Genesis Flood* was published in Britain and in the 1970s two further Creationist societies were formed in Britain. However, all this is branches and not roots.

There are two false trails that are frequently followed in a superficial attempt to 'expose' the roots of Creationism. First, Creationism is considered to be an action replay of Bishop Samuel Wilberforce's blunders at the British Association in 1860. Thus writes Philip Kitcher 'In 1860 . . . Thomas Henry Huxley, Darwin's Bulldog, vanquished Bishop Wilberforce in a famous debate . . . Over 120 years later, the conclusions and the debating methods of "Soapy Sam"

1. See especially S. J. Gould, *Hen's teeth and horses' toes*, p.263–280, 1983. Further references in M. Ruse, *Darwinism defended*, p.336, 1982.

2. R. L. Numbers, *Creationism in 20th century America*, *Science*, 1982, *218*, p.538–544.

are alive and well, and playing in Peoria'.³ This is pure undiluted 'History of the warfare of science and religion' and is abusing history. The view was initiated by Draper and White⁴ and seeks to show how the Church has always tried to prevent the growth of science; the case of Galileo being the paradigm. Thus, supposedly, in the early 19th century the church tried to keep geology within the Creation Week and later tried to throttle evolution at birth. This has passed into popular mythology and is repeated *ad nauseam* by Christian and non-Christian alike. Ironically, one Creationist writer on the 'Rise of evolution' (Malcolm Bowden)⁵ has taken the warfare model and used it with the roles of cowboys and indians reversed! To historians of science, the warfare model has become less and less attractive as it confuses the historical issues. It is convenient to dismiss Wilberforce and his fellow religionists as obscurantists but it does not do justice to the facts. Contemporary reports do not support Wilberforce's defeat⁶ and many leading scientists including the geology Professors at both Oxford and Cambridge, not to mention Agassiz, also opposed Darwin.⁷ Though Wilberforce has historically at least been shown to be on the losing side, he was quite a competent naturalist and scientist. Geology was his forte, he was a pupil of Buckland and a committee member of the Geological Society of London. His scientific views were not 'Creationist' in a sense of a 'Young Earther', and he held a similar progressive creationist outlook to Buckland, Sedgwick and Phillips, i.e. an ancient earth and all the geological column of Cambrian, Silurian and Devonian etc. As Buckland was anathematised by George Bugg, a Scriptural Geologist of the 1820s, so would Wilberforce be criticised by today's Creationists, as is progressive Creationist Davis Young.⁸ It is part of contemporary mythology that Wilberforce and other churchmen were obscurantist anti-evolutionists, and Richard Dawkins is typical of this mistaken view '... in 1862 ... the 4004 BC date for the Creation then favoured by churchmen'.⁹

3. Kitcher, P. *Abusing science*, p.1, M.I.T. Press 1982.

4. White, Andrew, *Warfare of science with theology*, 1896. Draper, J. W. *History of the conflict of science and religion*, 1874.

5. Bowden, M. *The rise of the evolution fraud*, 1982.

6. The Athenaeum, 7th July 1860. Lucas, J. R. *Wilberforce and Huxley*, Historical journal 1979, 22, p.313-330.

7. See Moore, J. *The post-Darwinian controversies*, 1979. Hull, D. L. *Darwin and his critics*, 1973.

8. (Bugg, George) *Scriptural Geology*, 2 vols., 1826-7 eg. p.9 and *passim* on Buckland and others. Morris, H. M. *Science, Scripture and the Young Earth*, 1983 on Young, D. A. *Christianity and the age of the earth*, 1982.

9. Article on 'Evolution' in McFarland, D. (Ed.) *Oxford Companion to animal behaviour*, p.155, 1981.

Wilberforce was typical of Churchmen in the early 1860s with a high view of Scripture combined with an acceptance of modern science; the vast ages of geology were accepted as commonplace. Apart from the Brethren, Philip Henry Gosse¹⁰ and B. W. Newton,¹¹ the only Anglicans who come to mind as accepting (more or less) an Ussher chronology are Henry Moule (father of Bishop Hanley Moule) and possibly J. W. Burgon. Archdeacon Pratt is typical of the conservative evangelical with his *Science and Scripture not at variance*¹² which was revised to attack both the *Origin of Species* and Lyell's *Antiquity of Man* (1863) but is well-informed geologically. In histories of geology, Pratt is given favourable references for his work on Isostasy in the Himalayas. In the early 1860s most Christians were antagonistic to evolution, but with another decade increasing numbers of Christians were accepting evolution, and the *Journal of the Transactions of the Victoria Institute* carried its first evolutionary article in 1875. All this should be common knowledge and is supported by the Darwinian writers,¹³ and Christian writers such as Bernard Ramm and Davis Young.¹⁴

The second false trail is to reckon 'Creationism' as the common view of all 'Fundamentalists'. The term 'Fundamentalist' is an over-used word, especially used when one wishes to condemn by a label. Again, this is common mythology which does not do justice to the history of Fundamentalism. Fundamentalists do hold to the 'fundamentals' of the faith, with a stress on substitutionary atonement, a high view of Scripture etc. but they cannot be classified into either dispensationalism or Creationism or both. The word 'Fundamentalist' has changed in meaning, today it is used to describe a very literalistic faith and is willingly so-called by only the most literal. Most would prefer to be called 'evangelical'. But the first fundamentalists were named after the twelve booklets *The Fundamentals* published in 1910 to 1915 to affirm the 'fundamentals' against the rise of modernism. As well as articles by highly competent conservative theologians and some by less able 'Bible Teachers', *The Fundamentals* contain several pro-evolutionary essays such as those by James Orr and G. F. Wright, a glacial geologist of high repute. The earliest fundamentalists were the heirs of conservative, evangelical Christians of the late 19th century, whose leaders almost without exception took a Progressive

10. Gosse, P. *Omphalos*, 1857.

11. Newton, B. W. *Remarks on Mosaic cosmogony*, (my edition is of 1882).

12. Pratt, John *Scripture and science not at variance*, 1856 and later editions. Greene, Mott T. *Geology in the 19th century*, p.238-242, 1982.

13. eg. Moore, J. *The post Darwinian controversies*, 1979.

14. Ramm, B. *The Christian view of science and Scripture*, 1955. Young, D. A. *op. cit.* 8.

Creationist or an Evolutionary viewpoint. Not even J. C. Ryle,¹⁵ Scofield or R. A. Torrey are exceptions to this. At the turn of the century 'Young earthers' were a very rare species indeed.¹⁶

Working backwards from the present the first clue for the roots of Creationism can be found in the Scopes Trial of 1925. The lawyer for the prosecution was the thrice-failed Presidential candidate, William Jennings Bryan. Paradoxically, Bryan was no Young Earther and privately accepted evolution for the whole animal kingdom excluding man. He considered evolution in its social forms to have disastrous ethical results and also to lead directly to Modernism. Bryan did refer to two 'expert witnesses'. The first was George Frederick Wright, a Congregational minister and first-class geologist. Wright was a Darwinian in his younger years but later became quite hostile to Darwinism, while yet retaining geological views though preferring a limited age of the earth—24 million years.¹⁷ Ironically, Wright was writing this as radiometric dating was being developed, and almost immediately estimates of the age of the earth of 20 to 100 million years (all following Kelvin) were superseded by, initially, 2000 million years and since 1950 by 4600 million years.¹⁸ Wright was unable to attend, having died some years earlier, but Bryan's other witness was alive and otherwise engaged lecturing in London to the Victoria Institute. This was the Seventh Day Adventist, George McCready Price (1870–1963)¹⁹ who two years before, in 1923, had published a massive 726-page tome entitled *The New Geology: a textbook for colleges, normal schools and training schools and for the general reader*. At first glance this is a competent work, well illustrated and produced. Geologists do not think so and Schuchert accused the author of harbouring a geological nightmare. The nightmare was his assertion that this alleged historical order of the fossils is clearly a scientific

15. Ryle was a 'doughty protestant evangelical'. Owen Chadwick misrepresents Ryle to say that he 'believed in the physical information in the Old Testament' (Chadwick, Owen *The Victorian Church*, Vol. 2, 2nd. ed. 1972, p.24) Ryle's acceptance of Geology is clear from his *Principles for Churchmen*, p.426, 1889.

16. My extensive, but by no means exhaustive, searches have found only a handful of 'young earthers' among evangelicals. These are mainly in the independent churches, especially the Brethren. The vast majority of evangelicals were either Progressive Creationists or mild Evolutionists. On Spurgeon—see Russell, C. A. *Crosscurrents*, p.170–174, IVP, 1984.

17. Wright, G. F. *The passing of evolution* in *The Fundamentals*, Vol. VII, 1910–1914. Other references in Moore, J. R. *op. cit.* 13.

18. See Burchfield, J. D. *Lord Kelvin and the age of the earth*, 1975. Holmes, Arthur *The age of the earth*, 1913 (later editions 1927 & 1937).

19. Numbers, R. L. *op. cit.* 2. Price, George Edward McCready entry in the *Directory of American biography*, Supplement 7, 1961–1965. Ramm, B. *op. cit. passim*. Numbers, R. L. *Sciences of satanic origin*, Spectrum, 1979, 9, p.17–28.

blunder' (page 676 and Chapter 28) and his 'great law of conformable stratigraphic sequences'. 'Any kind of fossiliferous beds whatever, "young" or "old", may be found occurring (sic) conformably on any other fossiliferous beds "older" or "younger"'. Thus Cambrian may lie conformably on top of Cretaceous, and Mississippian on Miocene, or vice versa, in any order. As in his previous works, Price went for an alternative explanation of the strata—they were laid down in a great catastrophe—the Noachian Deluge. This was because as a young man he had read the series of Old Testament character studies 'Patriarchs and Prophets' by Ellen White, the founder of the Seventh Day Adventists. She wrote of the geological efficacy of the Flood 'The entire surface of the earth was changed by the flood . . . At this time immense forests were buried. These have since been changed to coal . . .'²⁰ This prevented Price from adopting geological or evolutionary views to which he had nearly succumbed and from then on he was a prolific writer for flood geology and the anti-evolution view, with books entitled *Illogical Geology*, *Q.E.D.*, *New Geology* etc. Another contemporary Seventh Day Adventist also considered things evolutionary, but came to the opposite conclusions to those of Price and thus left the Seventh Day Adventists. He was Dr. Kellogg, a doctor-turned-food technologist, whose 'harmonies' of science and religion were typical of his era and are now forgotten.

It is too simple to see the Scopes Trial as a legal battle of enlightened science, with Mr. Scopes as the SAS raiding party and Clarence Darrow as Supremo, fighting against Jennings Bryan, an old-style Field Marshal commanding vast troops of rural Americans wanting the old-time religion. In the 1920s American Fundamentalism was hardening in the aftermath of the Great War and the loss of control of denominations to Modernism, losing the open-ness of the Fundamentals, but it was not monochrome Young Earth. Throughout the wilderness years of Fundamentalism—the thirties and forties—the dominant and majority view of Fundamentalists was some kind of Progressive Creationism.²¹ This is to be expected, as it was the hey-day of Dispensationalism and the Scofield Bible. Despite his literalistic views of Biblical prophecy, Scofield held to the gap theory of Genesis 1:1–2, thus allowing aeons of geological time; others held to a Day-age theory. Fundamentalists did hold that Evolution was fundamentally wrong. Throughout this period, Young Earthers were in the minority. Many of the Young Earthers were in the immigrant

20. White, E. G. *Patriarchs and prophets*, p.93–94, 1897.

21. Most helpful on fundamentalism is Marsden, George *Fundamentalism and American culture 1870–1925*, 1980 and *Creation versus Evolution*, Nature 1983, 305, 571–574, reprinted in *Faith and Thought*, 1983, 110, p.124–139.

Reformed and Lutheran tradition who, at that time, held aloof from Fundamentalists because they were considered to be lacking in Confessional Theology.²² Others, like Henry Rimmer, were in the Elmer Gantry mould.²³ It was into this environment that Morris (a Baptist) and Whitcomb (a Lutheran) launched their *Genesis Flood* in 1961 and it quickly found, and filled, a religious niche, thus indicating that the compromise of the post-Scopes Fundamentalists was a weak one, probably because with the emphasis on the literal truth of Scripture it was only a short step to accept the literal truth of early Genesis.

With Fundamentalists' rejection of Evolution, uneasy acceptance of geology, and tendency to literalism, it is instructive to go back to the pre-Darwinian days of the 19th century as there seems to be a marked similarity in outlook. The decades which saw the rise of geology (1800–1840) are most fascinating and important both for the history of science and of theology. They were turbulent years in Britain, of both radicalism and reaction. The Napoleonic years saw reaction. In England, Erasmus Darwin was despised and Priestley's house was burnt and he left for the States. In the 1820s Bishops were stoned in the street, and in 1824 Buckland received a poison-pen letter. 'Mr. Professor (sic) . . . (some latin) . . . Pray have mercy on the infant authors of that peurile production of *Systema Natura* (i.e. Linnaeus) from *An Enemy of Radicalism*',²⁴ an indication that some (or many) saw the new science as an agent of infidelity, political radicalism and the Reform Movement. The popular view of these four decades is that there was a warfare between Genesis and geology, and during the last year this viewpoint has been portrayed twice on television with much dramatic effect, and more inaccuracy, by Don Cupitt and James Burke.²⁵ It is probably significant that the main opposition to geology on religious grounds took place in the 1790s and then again in the 1820s and 1830s—all decades of social ferment. However, we get the wrong picture if we visualise progressive scientists being obstructed by traditional churchmen. This was not the case in either England or Scotland. Walter and Susan Cannon try to make the case that geology was supported by Broad churchmen

22. Reformed: Hepp, V. *Calvinism and the philosophy of nature*, 1930; Berkhof, Louis *Systematic theology*, 1941 (and frequent reprints); Lutheran (Missouri Synod) Graebner, T. *God and the cosmos*, 1932.

23. For example: Rimmer, H. *Modern science and the Genesis record*, 1937. (Who simultaneously held to the Gap Theory and Flood Geology!) See Ramm, B. *op. cit.* 14 *passim*.

24. Buckland Papers in the University Museum at Oxford.

25. On Cupitt, D.—see Roberts, M. B. *All at sea with faith*, Biblical Creation, 1984, 19, p.3–8.

rather than by their Conservative brothers.²⁶ It is not convincing. Clerical geologists and their supporters came from the whole range of the ecclesiastical spectrum and were honestly convinced that geology was no threat to religion but rather supported it. The emphasis on the Noachian Deluge was neither obscurantism nor pandering to religiosity but a genuine viewpoint which stemmed from the contemporary, cultural outlook and seemed to fit geological discoveries. The English Diluvial Geology is a development of the 17th and 18th century early attempts which also without exception regarded the Flood as *the* one major geological event;²⁷ for example, the Theories of the Earth of Burnett, Whiston and Woodward. In the mid 18th century, Catcott, whose Hutchinsonian 'Treatise on the Deluge' of 1768 contains not only long lists of animal occupants of the ark (with the 1825 sheep needed for the rapacious beasts, quoting the Latitudinarian Bishop Wilkins of Chester) but also some extremely good geological observation and reasoning, was quoted with approval by Conybeare in 1822,²⁸ whose evangelical heritage did not prevent his geological development.

By 1800, English geologists had multiplied deluges, so that the Noachian Deluge was seen as the last of several, and according to Buckland as the last of many. In a 'Warfare' historiography these Diluvial Geologists are an object of derision, but that does not do justice to them, and the way that they developed their geological understanding. Further, it must be noted that much early Geology was carried out on the marine Mesozoic rocks of Southern England, and their frequent highly fossiliferous bands (or fossil graveyards) positively shrieked 'Deluge' to those early workers. Up to the early '20s a multiple deluge theory fitted their findings and then, and only then, was Diluvialism found wanting, first by the Scottish Evangelical Calvinist John Fleming²⁹ and Lyell,³⁰ followed by the recantation of Sedgwick in 1831³¹ and a little later by Buckland.

This Diluvialism, with both its many deluges and a greatly

26. Cannon, W. F. *Scientists and Broad Churchmen*, Journal of British Studies, 1964, 4, p.65-68; Cannon, S. F. *Science in culture*, 1978. (These two are the same author.)

27. See especially Porter, Roy *The making of geology*, 1977. Rupke, N. A. *The great chain of history*, 1983. Catcott, A. *Treatise on the Deluge*, p.263-264, 1768.

28. Conybeare, W. D. and Phillips, W. *Outlines of the geology of England and Wales*, p.xxv, 1822.

29. Fleming, J. *Remarks on the modern state*, Edinburgh Philosophical Journal xii, p.116-127, 1825. Fleming, J. *The geological Deluge as interpreted by Baron Cuvier inconsistent with the testimony of Moses and the phenomena of nature*, Edinburgh Philosophical Journal xiv, p.205-239, 1826.

30. Lyell, C. *Principles of Geology*, 1830-1833.

31. Sedgwick, A. Proc. Geological Society 1831, 1., p.313.

extended time-scale (already reckoned to be millions rather than thousands of years) was acceptable to both the evangelical and the non-evangelical alike. (In the Anglican Church there was little doctrinal difference between Evangelicals and others; the difference was mainly 'enthusiasm', which many non-Evangelicals, following Joseph Butler, saw as a 'very horrid thing'). It is remarkable how many early Bampton lectures were on Enthusiasm and Methodism. The Evangelicals were divided over geology, but so were non-Evangelicals. Buckland drew his supporters from a wide spectrum. One was Shute Barrington, then in his eighties, who must lay claim to being the most conservative Bishop of Durham in the last 200 years, spending his 57 years as a Bishop (initially at Llandaff and Salisbury) refusing to induct clergy of dubious theology and resisting any attack on the 39 Articles (Paley was in the forefront of a relaxation on the Articles). Two others were leading Evangelicals, G. S. Faber³² and John Bird Sumner (later Archbishop of Canterbury),³³ both of whom by 1814 had happily taken on board geology. Another was Edward Copleston, intellectual leader in Oxford in the 1820s, who as the founder of the Oriel Noetics is reckoned to be the founder of liberal theology. Simeon could find no great difference of opinion with him but Lyell found him to be most awkward when seeking the Geology chair at Kings College, London because Copleston wanted to preserve the historicity of the Deluge. Other Evangelicals opposed geology; in 1817 Thomas Gisbourne (Wilberforce's spiritual director) published *The Testimony of Natural Theology to Christianity* with a 'Young Earth' and 'Deluge Geology' outlook. During the 1820s and 1830s there was a spate of 'anti' or 'Scriptural Geologies', many by Evangelicals. My favourite is George Bugg's *Scriptural Geology*. The list of 200 subscribers includes many clergymen, notably Charles Simeon. Little is known of Bugg. He had weighed in virulently on Baptismal regeneration as expounded in Mant's Bampton in 1816,^{33b} was dismissed from his curacy in 1818, and later ended up as a Unitarian. When he wrote 'Scriptural Geology' in 1826 he appears to have been an evangelical and bewails how the errors of Buckland, Sumner and Faber have 'been translated into the pages of the Christian Observer'³⁴ (*The Christian Observer* was the leading evangelical Anglican magazine.) His starting point is

32. His sympathies with geology are to be seen in Faber, G. S. *The origin of pagan idolatry*, 1816, 1, p.281ff. Faber, G. S. *Christian dispensations*, 1823, 1, Chapt. 3. Faber was so up-to-date in his geology that he refers to Buckland's work on the Kirkdale Cavern prior to Buckland publishing anything.

33. Sumner, John Bird *A treatise on the records of the Creation*, 1816.

33b. Bugg, G. *Spiritual Regeneration*, 1816. When I read the copy in the Bodleian Library, Oxford, all the pages were uncut.

34. Bugg, George *Scriptural Geology*, p.4, 1826.

a literal reading of Scripture and this can only mean six 24-hour days for Genesis 1 to which 'Christian geologists are bound in honour and conscience to agree'.³⁵ In Chapter 8, he stresses that animals were not created carnivorous, or else death would have existed from the beginning, whereas death came in at the Fall. Another Evangelical, Frederick Nolan, gave the Bampton Lectures in 1833, only weeks before Keble's epoch-making sermon on National Apostasy in the same church.³⁶ These Bampton lectures gave Buckland apoplexy, with their rejection of geology, even of a diluvialist brand.³⁷ Nolan avoided referring to Buckland, but the implications were there.

Throughout the 1820s and 1830s the pages of the *Christian Observer* buzzed with controversy over geology, reflecting the division among Evangelicals. The Editor, S. C. Wilks, was clear where he stood and frequently gave footnotes of considerable length and erudition (with information supplied by Conybeare or Buckland) in reply to the Scriptural geologists.³⁸ There were also non-Evangelical opponents to geology. Some were traditional, orthodox like Edward Nares, the Regius Professor of History at Oxford, whose Bampton and other works were hostile to geology. Most notorious at the end of this period was Dean Cockburn of York who lost no opportunity of stressing the infidelity of geology, and published several short works to the chagrin of geologists.³⁹ The Revd William Kirkby, an entomologist, also argued for 'Scriptural Geology' in his 1835 Bridgewater Treatise,⁴⁰ again to the annoyance of Buckland, among others.

'Anti-geologies' were not restricted to clergymen. We may cite Granville Penn's *A Comparative estimate of the Mineral and Mosaical Geologies*, and more will be found in the literature.⁴¹ These are considered by Rüpke to represent the strong Oxbridge Classical tradition which regarded ancient written sources, i.e. classical

35. *op. cit.* p.50.

36. Nolan, F. *The analogy of revelation and science*, 1833.

37. Morrell, J. and Thackray, A. *Gentlemen of science*, p.234-235, 1981.

38. *Christian Observer*—various issues from 1832, 1834 (especially) and 1839 as referred to by Smith, J. Pye *Geology and Scripture* (Bohn ed.) p.200.

39. See Morrell and Thackray, *op. cit.* 37, p.243-244.

40. Kirby, W. *On the power, wisdom and goodness of God as manifested in the creation of the animals* Bohn ed. Vol. 1, Chapt. 1, p.71ff.

41. There is little published on the Anti- or Scriptural-Geologies. Milhauser, *Scriptural Geologists, Osiris*, 1954, II, p.65-68 is most unhelpful. So far the best are the chapters in Rüpke, N. A. *The Great Chain of History*, 1983, Chapt. 16, though he is weak in his theological analysis (but he is a historian of science rather than a church historian). His bibliography for the early 19th century is especially good.

42. Rüpke, N. A. *op. cit.* 41, p.51-57. Reventlow, H. G. *The Authority of the Bible and the Rise of the Modern World*, p.223-243, 1984.

writers, as far more reliable and important than scientific discoveries. This probably ties in with the Latitudarianism discussed below, which owes more to the Renaissance than the Reformation and is 'Cultural' rather than 'Religious' Protestantism.⁴²

During the 1820s, William Brande of the Royal Institution published his lectures on geology, which allowed of only one Deluge.⁴³ In 1829 his friend, Andrew Ure of Glasgow, (who is normally only remembered for a disparaging reference in *Das Kapital* and for an experiment (1818) on the effect of electric current on a recently executed criminal, a macabre version of a recently killed frog's leg, thus causing Bryon to write 'And Galvanism has set some corpses grinning'⁴⁴ published his *New system of Geology*. Responses were decidedly hostile; Lyell in his usual jocular manner wrote 'It is to prove the Hebrew cosmogony, and that we all ought to be burnt in Smithfield. So much the better ...' The theological *British Critic* contained a very hostile review—anonymous, but believed by Buckland to be by the evangelical Sumner, then Bishop of Chester.⁴⁵ In his Presidential Address to the Geological Society, Sedgwick was positively damning⁴⁶ and Geologist Bakewell writing to Silliman was scathing. 'Ure is said not to be a practical religionist any more than he is a practical geologist. In this country, a pretence to religion and principle is more often esteemed than the reality'.⁴⁷

It is probably surprising to some that no mention has been made yet of the 'Catastrophism-Uniformitarianism' dispute of the early 19th century. This is because that dispute was one *within* Geology and Catastrophist and Uniformitarians were not as far apart as they are often made out to be.⁴⁸ Both held to the same geological column—there was no argument over the order of the strata or over the vastness of geological time; thus the Catastrophist Henslow could recommend Darwin to take the Uniformitarian Lyell's *Principles of Geology* on the *Beagle*, with a warning against Lyell's philosophy of geology,⁴⁹ which Darwin did not heed! The scriptural geologists of the day were critical of the Catastrophist Geologists, especially

43. Brande, W. *Outlines of geology*, 1829 (these have not been referred to) but his articles in the *Quart. Journal of Science, literature and Arts* (the organ of the Royal Institution) contain several articles from 1823 to 1827).

44. Farrar, W. V. *Andrew Ure FRS and the philosophy of manufactures*, Notes and records of the Royal Society, 1973, p.299–324.

45. *Anon Review of a new system of Geology*, *British critic* Vol. VI, 1829, p.387–412.

46. Sedgwick, A. *Proceedings of the Geological Society* 1830, 1, p.208–210.

47. Quoted in Farrar *op. cit.* p.323.

48. Hooykaas, R. *Natural law and the divine miracle*, 1959. Gould, S. *Ever since Darwin*, p.147–153, 1977.

49. Darwin, Charles *Autobiography*, 1969, p.101 and 1983 p.59.

Buckland, because even though they accepted a universal Noachian Deluge it was only the last of innumerable deluges, and they had departed from a literal Genesis. George Bugg said of Buckland's *Vindiciae Geologicae* that he had allowed only the last 30 yards of strata to the 'last revolution' and thus to 'OUR CREATION'.⁵⁰ Looking for historical precedents for modern-day Creationism, within the early 19th century, the only possible candidates are the Evangelically-inclined Scriptural geologists who, like Bugg, held that 'Whatever is contrary to the Bible must be false'.

The other 'Anti-geologists' (the change of nomenclature is deliberate) have a slightly different motive and provenance, being more cultural than evangelical and are the consistent heirs of the late 17th century *Theories* of the Earth. Many creationist writers look to these 'Theories' as their precursors, and often stress that until 1800 the 'Flood Geology' of Whiston and Woodward was the norm.⁵¹ One example of many is Henry Morris in *Men of Science, Men of God* who, in his chapter on 'The Age of Newton' refers to Newton's writing a book defending the Ussher chronology and 'believed that the worldwide Flood of the Bible accounted for most of the geological phenomena and he believed in the literal six day creation record'. He then writes of Thomas Burnet (1635–1715)—'one of the first geologists' and author of *The sacred theory of the earth* and then of William Whiston (Newton's successor) author of *A new theory of the Earth* and John Woodward author of the *Essay towards a natural history of the Earth*.⁵² During the last quarter of the 17th century there was a spate of these *Theories*.⁵³ There is a common pattern to each; all more-or-less hold to an Ussher chronology and that the Flood of Noah laid down the strata, and look to a consummation and the end of the World. There the similarities end. Almost everyone refutes the others on details—the copy (second edition 1691) of Burnet that I read includes a refutation by an Erasmus Warren and a counter-refutation by Burnet. More refutations accumulate in later editions.

At first sight these *Theories* are in succession to a long line of outlines of world history based on the historical books of the Bible including early *Genesis*. One of the earliest is the apologetic work *Ad Autolyicum* by Theophilus of Antioch written in about A.D. 180. In this, Theophilus takes Biblical history as the norm and fits in various other ancient history from Greek and classical authors. He deals at great

50. Bugg, *op. cit.* p.27.

51. Gish, D. *Evolution—the fossils say No!*, p.62, 1979.

52. Morris, H. M. *Men of science—men of God*, p.45–53, 1982.

53. Willey, B. *The eighteenth century background*, p.33–46, 1940. Allen, D. C. *The legend of Noah*, 1949. Porter, Roy *op. cit.* 27.

length with the events of the Creation Week and concludes with a long section on Biblical chronology in which he states that the earth was 5695 years old when the Emperor Marcus Aurelius died, i.e. Creation was in 5515 B.C.⁵⁴ The next 1500 years saw a general acceptance of an earthly existence of a few thousand years. Luther took for granted Creation at 4000 B.C., Ussher and Lightfoot refined this and arrived at their date of 4004 B.C., the latter being particularly precise on the day and the month—9.00 a.m. on Sunday 23rd October.⁵⁵ On one level, the 17th century chronological calculations and theories of the earth are a continuation of the long tradition going back to the Rabbis, and in the Christian church, to Theophilus and Luther to name but two; but there was a very significant shift in the 17th century studies of the Flood and the chronologies as compared to those of the Reformation. Whereas, Luther was most definitely 'Gospel Protestant', those of the 17th century were 'Cultural Protestants', adopting more and more a moralistic Latitudinarian position.⁵⁷ The Reformers, English and Continental, were extremely strong on Soteriology but this emphasis was increasingly lost by 17th century English theologians, both Anglican and Puritan. This is superbly charted by C. F. Allison in his aptly titled *The rise of Moralism*, tracing out the change from Hooker and Donne to the moralistic Latitudinarians of the late 17th century. Archbishop Tillotson is the supreme example and his sermons are thoroughly moralistic. Allison writes, with an embarrassing accuracy 'Starting from assumptions that can be characterised only as Pelagian, soteriological thought, by an implacable logic, moved through an exemplarist atonement to an adoptionist Christology to a Socinian deity and finally from deism to atheism'.⁵⁸ The writers of the *Theories* were well down that road. Jesus Christ was the founder of a new law, with stress on his being a moral teacher, rather than a Redeemer. Anti-Trinitarianism in its various forms was widespread such as in Newton,⁵⁹ Clarke and Whiston.⁶⁰ The Latitudinarians such as Tillotson and Burnet did not go so far, but they represent a general shift from the Reformation to Latitudinarianism.⁶¹ They too had moved from the Bible as revelation, and put more

54. Theophilus of Antioch *Ad Autolyicum*, 1970, III 28, p.143-145. Haber, F. C. *The age of the world: Moses to Darwin*, 1959 traces the story up to Darwin.

55. Brice, W. C. *Bishop Ussher, John Lightfoot and the age of creation*, Journal of Geological education, 1982, 30, p.169-174.

56. —

57. Reventlow *op. cit.* 42.

58. Allison, C. F. *The Rise of Moralism*, p.192, 1966.

59. Manual, F. E. *The religion of Isaac Newton*, especially p.59-63, 1974.

60. Reventlow *op. cit.* 42, p.335ff especially p.341.

61. Reventlow *op. cit.* 42, p.223-243.

emphasis on the 'Book of God's Works' and judged all by the principle of reason. Allen aptly writes 'During the latter half of the 17th century the attempt to prove that the Flood was universal was an obsession of scientists, but reason, rather than supernatural revelation, was the great instrument of this attempt'.⁶² The intention of supporting the Christian faith by an appeal to reason resulted in failure. With the loss of soteriology this led first to the Socinianism of Newton and Whiston and then to the Deism of the 18th century.⁶³ No wonder Erasmus Darwin spoke of Unitarianism to Coleridge as a 'feather bed to catch a falling Christian'.⁶⁴

It is hard to see how creationism can look to the Theories of the Earth as their forerunners, since creationists are, without exception, extremely strong on soteriology with an emphasis on penal substitution and propitiation. Despite this, paradoxically, creationists are correct to identify The Theories of the Earth as their forebears. Newton and others coalesced the two Books into one; thus the Book of God's Word was subsumed into the Book of God's Works, with the Bible giving physical information on the world⁶⁵ ignoring Calvin's warning 'he who would learn astronomy and other recondite arts, let him go elsewhere'.⁶⁶ Creationists do the same, and no appeal to scientific creationism hides that fact. The Canopy Theory (the Water Vapour Theory) and the aqueous source of the 'fountains of the deep' are examples, and both have forebears from that period.⁶⁷ It is difficult to decide which is the greater, the exegetical gymnastics of using a text like Genesis 7:11 for the source of the Flood waters or the scientific

62. Allen, D. C. *op. cit.* 53, p.92.

63. Reventlow *op. cit.* 42 Part III, p.289-406.

64. King-Hele, Desmond *Doctor of revolution*, p.260, 1977. Coleridge later changed from Unitarianism to Christianity and described the evolution of Darwin as 'Orang Outang theology of the human race substituted for the first chapters of the Book of Genesis' p.302.

65. Manuel, F. E. *op. cit.* 59, p.31ff.

66. Calvin, J. *Commentary on Genesis* on Genesis 1:15. Hooykaas, J. Religion and the rise of modern science, p.118, 1972.

67. Jonathan Edwards (I regret that I have lost the reference to his scientific writings republished in the 1960s in the USA, probably by Yale) in the 18th century, discusses a 'water vapour canopy'. Halley's *Some considerations about the cause of the universal deluge*, in Phil. Trans. Royal Society, 1724, 33 p.118-125 deals briefly with the 'fountains of the deep' but draws no firm conclusion on what these were. Not surprisingly he concluded that a comet had caused the Deluge! His ideas, in fact, predated Whiston (1696). Woodward's *An essay toward a natural history of the earth*, 1695, Part 3, p.115-169 discusses both but rejects a 'canopy' (p.159). Whitehurst, John *An enquiry into the original state and formation of the earth*, 1778, discusses the absence of rain before the Deluge and that Noah's rainbow was the first ever and that the high humidity leading to copious dews (p.139-140). This is similar to the 'Water vapour canopy' theory and is surprising for a friend of Erasmus Darwin.

gymnastics involved in dismissing all science which does not fit into a six-day Flood Geology frame-work. This results in refutation and counter-refutation, which occurs among creationists and especially with their opponents, Christian or non-Christian. This situation has parallels in the closing years of the 17th century with the refutation, and counter-refutation of Burnet, Whiston, Woodward and others.

Conclusion:

To many, the roots of Creationism are obvious—a hangover from interfering literalistic clerics like Samuel Wilberforce. That view is manifestly wrong and is due to the whole mythology of the 'Warfare of Science and Religion' which has not yet been sufficiently demythologised. Though superficial parallels between today's creationists and various 19th century churchmen can be found, the vast majority of churchmen including Evangelicals were not hostile to geology, and as the century wore on, less hostile to evolution. Thus no roots for creationism can be found in Wilberforce and his colleagues, or the early Fundamentalists.

There is a greater similarity of modern creationists to the more evangelical scriptural geologists of the 1820s–1840s but these do not find any acknowledgement today. Despite claims to the contrary, there is no way that the roots of creationism can be found in the multiple Catastrophists like William Buckland and Cuvier. Tracing creationism back to the late 17th century theories of Burnet, Whiston and Woodward is similarly mistaken, despite the common emphasis on Flood Geology, as these theories have a thoroughly rationalistic, moralistic and Latitudinarian and, at times, anti-Trinitarian outlook consonant with a weak, if not absent Soteriology. Creationists do themselves a disservice to claim lineage from them.

Ultimately there is one, and only one, root of creationism and that is the teachings and writings of the Seventh-Day Adventist George McCready Price, who derived his views from the teachings of the Seventh-Day Adventists' founder, Ellen White. This has been grafted most successfully onto a Fundamentalist outlook which inclines to literal interpretation of the Bible.

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R. S. Luhman

The Evolution-Creation Controversy in Perspective

It is ironic that the centenary of Darwin's death should coincide with the granting of permission by certain American States for creationists to propagate their views in schools. The controversy surrounding this decision has barely affected the scientific community. This is both understandable and unfortunate. It is understandable because the views expressed are exclusively those of the most vociferous creationist group who believe that God created the world in six literal days some six thousand years ago and who maintain that all fossils were deposited in Noah's flood.¹ This by no means represents the views of all creationists, some of whom, though accepting a similar view on the authority of the Bible, have rejected this extreme position on scientific grounds.^{2, 3} In fact the view owes more to the history of American fundamentalism than it does to genuine opposition to Darwinism.^{4, 5} The failure to take creationists seriously is unfortunate because by so doing valid criticisms of evolutionary theory are overlooked and students can be misled into regarding evolution as unassailable.

Michael Ruse, who has been actively involved in the controversy, has written a spirited defence of neo-Darwinianism together with a trenchant attack of creationism.^{6, 7} In so doing he has demonstrated the very misunderstandings and distortions of which he accuses his opponents. He maintains that creationism '... makes one mistake after another and pulls one deception after another ... It is simply mistaken; it is corrosive.' On the other hand, 'Evolution is fact, *fact*, FACT!' and is 'one of the great intellectual achievements of all time.' Of course there are distortions in the creationist literature; some

1. Whitcombe J. C. and H. M. *The Genesis Flood* Grand Rapids: Baker, 1961.

2. Cansdale G., *A Universal Flood: Some Practical Considerations Faith and Thought*, 1972, 98, 2-3.

3. Van de Fliert J. R., *Fundamentalism and the Fundamentals of Geology Faith and Thought*, 1969, 98, 11-42.

4. Marsden G. M., *Creation versus Evolution: no middle way Nature*, 1983, 305, 571.

5. Nelkin D. *Science Textbook Controversies and the Politics of Equal Time* Massachusetts: MIT, 1977.

6. Ruse M. *Darwinism Defended* Massachusetts: Addison-Wesley, 1982.

7. Kitcher P. *Abusing Science* Massachusetts: MIT, 1981.

perhaps deliberate but others unintentional. For instance Stephen Gould has often accused creationists of wilfully distorting his views on punctuated equilibrium, but this is hardly surprising when his colleagues contrast this view with the more orthodox theory and castigate the latter as a 'myth'.⁸

As examples of misrepresentation in creationist literature Ruse cites the failure to mention Darwin's finches ('the strongest point in the whole Darwinian story') and to see the significance of morphology. In the former case the creationist has no need to dispute the evidence because he does not deny natural selection, but rather maintains it is not sufficient to explain the origins and development of all living forms. In fact they argue that natural selection supports the creation model because God '... would institute a system which would not only assure its genetic integrity but would enable it to survive in nature ... Otherwise, even very slight changes in the habitat, food supply etc. might cause its extinction'.⁹

Concerning morphology, Ruse writes, 'The arm and the hand of man, the wing of bird, the front-leg of horse all tell of evolution from the same organisms. What can the Creationist do in the face of such devastating proof?' I would suggest he could do one of three things. First, he could argue that God used a basic design in his creative activity. Secondly that the similarities are the result of convergent adaptations to particular environments. Thirdly he could argue that the inference Ruse draws is not the correct one and might appeal to the cladist for support. For example, Colin Patterson wrote '... the most important outcome of cladistics ... has led some of us to realize that much of today's explanation of nature, in terms of neo-Darwinism, or the synthetic theory, may be empty rhetoric'.¹⁰ Similarities have been misinterpreted in the past and creatures have been wrongly classified. Examples of this are the tree shrew and giant panda.¹¹

Evolutionists, too, have been guilty of oversimplification and distortion, especially in three areas where the conflict has been most vigorously fought. One of these areas is palaeontology. The significance of the fossil record has been emphasized more by creationists than evolutionists with the former attempting to show its incompatibility with evolution.^{12, 13} Certainly palaeontology broadly supports evolution

8. Eldredge N. and Tattersall I. *The Myths of Human Evolution* New York: Columbia University Press, 1982.

9. Morris, H. M. *Scientific Creationism* San Diego: Creation-Life, 1974.

10. Patterson C., *Cladistics Biologist*, 1980, 27, p.239.

11. Martin R., *Phylogenetic reconstruction versus classification: the case for clear demarcation Biologist*, 1981, 28, 127-132.

12. Anderson J. K. and Coffin H. G. *Fossils in Focus* Grand Rapids: Zondervan, 1977.

13. Gish D. *Evolution: The Fossils Say No!* San Diego: Institute for Life Research, 1973.

by demonstrating that simple organisms came first, plants preceded animals and insect-pollinated plants appeared after the insects. Fossils fit into the same hierarchy as living species and evolutionary sequences can apparently be demonstrated. Indeed Ruse regards the pedigree of the horse as one of the best documented examples of evolutionary change and challenges creationists to dispute it. This, of course, they do by pointing out that to do so requires combining fossils recovered from different parts of the world and by concentrating on one feature.¹⁴ ¹⁵ This, in turn, betrays a failure to understand that evolution does not proceed in a straight line but zig-zags at variable rates in conjunction with environmental change. In this way the splayed toes of *Eohippus* can be correlated with the Tertiary swamps, and the later long teeth with the Miocene grasslands and the hoof with the hard ground of the Pliocene period.

More questionable support comes from transitional forms which are interpreted differently by each side. So *archaeopteryx* is either a primitive bird or a transitional form. In the same way the living *monotremes*, the platypus and echidna, are either the most primitive mammals or a good example of living transitional forms between reptiles and mammals.

It was Darwin who recognised the real difficulties when he wrote, '... though we find in our geological formations many links between the species which now exist and which formerly existed, we do not find infinitely numerous fine transitional forms closely joining them together;—the sudden manner in which several groups of species first appear . . .;—the almost entire absence, as at present known, of formations rich in fossils beneath the Cambrian strata—are all undoubtedly of the most serious nature.'¹⁶ Over one hundred years later the situation has hardly changed.

There was a veritable explosion of life in the Cambrian period encompassing the major invertebrate groups whose origins still remain problematic. Fossils have been found in pre-cambrian rocks but these are almost exclusively of bacteria (stromatolites), algae and fungi. Various explanations for this absence of ancestors to Cambrian fossils have been suggested including the lack of oxygen, destruction by heat, the fact that all the organisms were soft-bodied and lived exclusively on the seahorse. Stephen Gould after rejecting the above explanations, explains the lack as '... nothing more than the log phase of this continuous process (the domination of algae until croppers

14. Anon *Evolution* Toronto: International Christian Crusade, 24-5, 1965.

15. Kerkut G. A. *Implications of Evolution* London: Pergamon, 145-9, 1960.

16. Darwin C. *On the Origin of Species by Means of Natural Selection* London: Murray, 1859.

arrived) . . . while post-Cambrian levelling represents the initial filling of ecological roles in the world's oceans (terrestrial life evolved later).¹⁷ This merely explains why algae was the dominant life form in pre-Cambrian times and not, which is the point at issue, why the fossils of the 'croppers' represent more evolved forms than one would expect on the neo-Darwinian hypothesis.

Creationists consistently point to the paucity of evidence in the fossil record for determining evolutionary development. No agreement can be found for the ancestry of the earliest vertebrates, the jawless fish or the flowering plants and many creatures including frogs, turtles and bats have no precursors and have remained virtually unchanged since their first geological appearance. Darwin could plead ignorance in his day, but such an appeal is no longer possible. Not surprisingly, Corner's words are quoted with approval. He said, 'Much evidence can be adduced in favour of the theory of evolution—from biology, bio-geography and palaeontology, but I think that to the unprejudiced, the fossil record of plants is in favour of special creation.' Attempts to explain the gaps and sudden appearances by the theory of punctuated equilibrium (rapid evolution in isolated pockets of population after a long period of stasis), destruction by meteorites¹⁸ or seeding from space¹⁹ have met with little support.

Another matter glossed over too cursorily in popular evolutionary literature is the origin of life. Most textbooks infer that the primal organism was very simple and the original atmosphere of the earth was a reducing one, but both of these are now virtually abandoned.²⁰⁻²³ The lack of a reducing atmosphere presents no real threat to the theory of spontaneous generation but the complexity of life does. Controlled experiments have shown that the building blocks of life could be formed by electric discharge or ultra-violet radiation bombardment. The yields were small and were often too unstable to allow further reactions. The optimistic view of Fox that amino-acids could have been polymerised on the rims of volcanoes has been

17. Gould S. *Ever Since Darwin* New York: Norton, 1977.

18. McLaren D., Impacts that changed the course of time *New Scientist*, 1983, 100, 580f.

19. Hoyle F. and Wickramasinghe N. C. *Evolution from Space* London: Dent, 1981.

20. Brooks J. and Shaw G. *Origin and Development of Living Systems* New York: Academic Press, 1973.

21. Byrt J., The Role of the Bible and of Science in Understanding Creation *Faith and Thought* 1976, 110, 160f.

22. Gribbin J., Carbon dioxide, ammonia—and life *New Scientist*, 1982, 91, 413f.

23. Peet J. H. J., Chemical Evolution—Some Difficulties *Faith and Thought*, 1982, 109, 128f.

challenged by no less an authority than the pioneer researcher, Stanley Miller.

In spite of Ruse's claim that Miller and Urey 'succeeding beyond all expectation', it has been shown that the experimenters used a cold trap which could not have existed on the primitive earth and the scenario envisaged was an unreal one. I have always thought that these experiments support the view that it was necessary for an intelligence (God?) to act upon the primordial matter to create life simply because the human experimenter was an indispensable part of the experimental situation.

As a final example of controversy I would like to discuss the subject of human origins, which has provoked more contention than any other aspect of evolution. Creationists have tended to capitalise on mistakes of the past like the Piltdown forgery and the prehistoric man reconstructed from a peccary's tooth, but more recently an attempt had been made to objectively evaluate modern evidence.²⁴ Unfortunately mistakes, like these of the past are still being repeated in the present. Both Dubois and the discoverers of 'Pekin Man' deliberately suppressed evidence that did not agree with their evaluation. Today intentional suppression is not common, but allowing one's expectations to colour one's interpretation of the evidence certainly is. Louis Leakey, for example, had definite views about human origins and, as his wife recalls 'When he saw the teeth (of "Nutcracker Man" *Zinjanthropus boisei*) he was disappointed since he had hoped the skull would be *Homo* and not *Australopithecus*.'²⁵ John Reader comments, 'More fundamentally, the dating controversy surrounding (*Zinjanthropus*) shows that modern palaeoanthropologists are no less likely to cling to erroneous data that supports their preconceptions than were earlier investigators. Dubois and the "Missing Link", Leakey and the "Oldest Man", both dismissed objective assessment in favour of the notions they wanted to believe.'²⁶

Ruse classifies hominid fossils into three groups: *Australopithecus* ('a mixture of ape and man') *Homo Erectus* ('a direct human ancestor') and *Homo Habilis* ('the first known intermediate between *Australopithecus africanus* and *Homo erectus*). Such a classification is generally acceptable, although it is now recognised that too much importance given to small differences in the past has led to an unnecessary proliferation of genera and species. David Pilbeam consequently

24. Bowden M. *Ape-man: Fact or Fallacy* Bromley: Sovereign Publications, 1981.

25. Leakey M. D. *Olduvai Gorge: My Search for Early Man* Cambridge: Cambridge University Press, 1979.

26. Reader J. *Missing Links* London: Collins, 1981.

denies a special status to *Homo Habilis* and renames it *Australopithecus Habilis*.²⁷

It is the *Australopithecine* fossils that have received most attention. They are generally put into two groups called 'robust' and 'gracile', but there is no agreement as to the relationship between the two. For some they are sexual or racial variants, but for others they belong to separate genera. Even the status of *Australopithecus* is not assured. Thirty years ago Straus and Zuckermann argued on the basis of dental comparison with living apes that the fossils were more ape-like than human, but today as a result of the discovery of the Laetoli footprints and the examination of the brain endocast pattern of one Hadar specimen²⁸ many are convinced that they are closer to man than to the apes. However, these interpretations have been challenged. Tuttle, writing about the footprints, maintains that, 'If the prints were undated or if they had been given younger dates most experts would probably accept them as having been made by *Homo*'. He believes they are virtually indistinguishable from prints made by modern Malaysian pygmies and South American Indians. Similarly many would argue that the boundaries of the brain areas in fossils hominids cannot be detected in the way Holloway claims and, even where they can, the interpretation of the brain pattern is far from simple.

Differences in anatomical structure have been the principal reasons for classifying fossil hominids into different groups. Creationists have pointed out that other factors, such as diet and disease, can account for many of the differences.²⁹ A diet of raw meat can cause the development of longer canines and J. T. Robinson believes the dental variations in the two types of *Australopithecines* can be accounted for by differences of diet. Disease has long been claimed as the reason for various peculiarities in Neanderthal Man. More recently, after re-examining the fossils, it has been concluded that their demise was probably hastened by rickets.^{30,31}

Molecular studies seem to indicate that man is closely related to the chimpanzee, which has led Gribbin and Cherfas to claim that, '... the chimp is descended from man, that the common ancestor of the two was much more man-like than ape-like'.³² This means that there

27. Pilbeam *The Ascent of Man* p.135, New York: Macmillan, 1972.

28. Holloway R. L., Cerebral brain endocast pattern of *Australopithecus afarensis* hominid, *Nature*, 1983, 303, 420f.

29. Custance A. C. *Genesis and Early Man* Grand Rapids: Zondervan, 1975.

30. Ivanhoe F., Was Vischow right about Neanderthal? *Nature*, 1970, 277, 577-9.

31. Wright D. J. M., Syphilis and Neanderthal Man *Nature*, 1971, 229, 409.

32. Gribbin J. and Cherfas J., Descent of Man—or Ascent of Ape? *New Scientist*, 1982, 91, 592f.

are at least three possible ways of relating man to the apes. The older view, only occasionally mentioned³³ that apes are the direct descendants, the more common view that they are distant cousins and the recent view that the ape is descended from man. No wonder the layman is confused! As always, one apparent solution raises other problems. Thus, Precise immunological and biochemical comparison, representing efforts to refine views of phylogenetic relationship of pongids and humans have been inconclusive at best . . . since results thus far are inconsistent with geochronological and chronometric estimates of the ages of hominid and pongid fossils.³⁴

The usual creationist response would be to see God at work where science fails to give an explanation. Such a 'God of the gaps' response is mistaken because it inevitably leads to a retreat as the gaps close. The evolutionist, on the other hand, could accept the difficulties and still maintain that his theory fits the data best. He would argue that any creationist theory must be rejected because it imports a meta-physical explanation that can be neither verified nor falsified. Also it is more complicated and should be rejected on the basis of Occam's razor.

It is true that God's existence cannot be proved scientifically, although belief in God can and has been explored by biologists.³⁵ Nevertheless rational reasons can be given for belief in God's existence.^{36,37} Similarly, whatever may be the response of the average believer, theologians have long maintained that God's existence is falsifiable, at least in principle.³⁸

Evolution has noticeably failed to demonstrate any real direction or purpose³⁹ and the attraction of creationism for many has been its demonstration of purpose in the universe and that organisms show evidence of having been designed with a particular end in view. Older apologists, following Paley, pointed out that it is not only living creatures but the inorganic environment that appears designed. The earth is the correct distance from the sun, is shielded from intense radiation and is on an axis that secures the maximum variation of temperature. It has the right mass to retain an atmosphere and an

33. Washburn S. L., *The Evolution of Man Scientific American*, 1978, 239, 134.

34. Buettner-Janusch J. *Hominidae*. The New Encyclopaedia Britannica 15th Edition. Chicago: Chicago University Press Vol. 8, p.1026, 1982.

35. Hardy A. *The Biology of God* London: Jonathan Cape, 1975.

36. Swinburne R. *The Existence of God* Oxford: Clarendon Press, 1979.

37. Luhman R. S., *The Concept of God: Some Philosophical Considerations The Evangelical Quarterly*, 1982, 54, 88f.

38. Luhman R. S., *God-Talk in the Academic Common Room Faith and Thought*, 1980, 107, 34-46.

39. Simpson G. G. *The Meaning of Evolution* Oxford: Oxford University Press, 1979.

abundance of water, which is rare elsewhere in the universe and has peculiar but necessarily properties for the maintenance of life.⁴⁰ Of course this argument can be stood on its head and it could be maintained that life exists on the earth and nowhere else simply because the conditions were right.

The argument from design has received apparent support from an unexpected source—cosmology. R. H. Dicke, following Dirac, noted curious numerical relationships between unrelated dimensionless numbers of the magnitude 10^{40} , namely the gravitational coupling constant, the age of the universe in atomic units and the number of massive particles in the visible universe. Such 'coincidences' point to a co-operation between widely different branches of physics and indicate a basic principle at work. The constraint is the existence of the human observer and hence the term 'anthropic principle' is used to explain it. This takes the argument back to the creation of the universe itself. The existence of galaxies is a necessary precondition of life and this in turn depends on the existence of a particular type of star, itself dependent on the gravitational coupling constant and the expansion rate of the universe, which is dependent on the mass of the neutrino and so on *ad infinitum*. Although the anthropic principle does not necessarily prove the universe was designed, alternative explanations such as the many-worlds theory are less convincing.⁴¹⁻⁴³

The design argument as applied to living organisms has been countered by an appeal to natural selection. Stephen Gould argues that pre-adaptation meets the objection that a half-formed organ would be useless. By pre-adaptation he means that every stage of development is useful in its own right and is not developed with a particular end in view but was adapted for other purposes. Thus, certain fish fins had a strong central axis, which was admirably suited to become a terrestrial leg.¹⁷ It is difficult to apply pre-adaptation to all apparent examples of design and Gould has recently admitted that 'a plausible story is not necessarily true'.⁴⁴

More problematic for the creationist is the existence of apparent pointlessness and suffering in the animal world. Years ago Haldane wrote, 'Blake expressed some doubt whether God had made the tiger. But the tiger is in many ways an admirable animal. We have to ask whether God made the tapeworm. And it is questionable whether

40. Clark R. E. D. *Universe: Plan or Accident* Exeter: Paternoster, 1961.

41. Gale G., 'The Anthropic Principle' *Scientific American*, 1981, 245, 114f.

42. Davies P. C. W. *The Accidental Universe* Cambridge: Cambridge University Press, 1982.

43. Davies P. C. W. *God and the New Physics* London: Dent, 1983.

44. Gould S. *The Panda's Thumb* New York: Norton, 1980.

an affirmative answer fits in either with what we know about the process of evolution or what many of us believe about the moral perfection of God.⁴⁵ This question is part of the traditional problem of suffering and evil and if a solution to this is forthcoming, as I believe it is, then this question too can be answered.^{46,47}

The purpose of this paper is not primarily to find a solution to the evolution-creation controversy, but rather to map out some of the problems and the misunderstandings. We owe it to our students to be as objective as possible and to give them sufficient data to come to a considered opinion.

If a tentative solution is to be offered it is, I believe, in terms of so-called theistic evolution. This claims that an intelligent designer is ultimately responsible for everything in the universe and that processes like natural selection are used to achieve this end. This view was held by Darwin's contemporaries, Richard Owen, Charles Lyell and Alfred Wallace. Darwin himself espoused the view in his essays of 1842 and 1844 and it is reflected in the closing words of *Origin of Species*; 'There is a grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one.'

45. Haldane J. B. S. *The Causes of Evolution* London: Longmans, Green, 1932.

46. Hick J. *Evil and the God of Love* London: Collins, 1968.

47. Luhman R. S., Belief in God and the Problem of Suffering *Evangelical Quarterly*, 1985, 57, 327f.

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Paul K. Jewett

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Robert R. Cook

Some reflections on the 1984 Reith Lectures: Minds, Brains and Science

The 1984 Reith Lectures were delivered by John Searle, Professor of Philosophy at the University of California, Berkeley. The task he set himself was to seek a reconciliation between our common-sense belief that we are conscious, rational, free agents and the scientific assumption that reality can be reduced to mindless physical particles. In my reflections I limit myself to two of the areas covered in the lectures, namely the mind-body problem and the freedom of the will.

John Searle on the mind-body problem

Put simply, Searle maintains that brains cause minds, and minds are a feature of brains. He disassociates himself from dualism with its assumption that minds are separate from brains while he also wishes to affirm, against certain extreme forms of physicalism, that mental phenomena such as consciousness and intentionality are real and important. He admits that there are massive empirical gaps in our knowledge of how the brain works, for example we still do not know why sleep is necessary or exactly how memories are stored, but he claims that there is no philosophical problem in discerning how the mind could be caused by, in the sense of being realized in, the brain. The analogies he gives are drawn from the relationship between micro—and macro—properties of physical systems. A table is solid (macro-level) while its molecules are not (micro-level), although the solidity of the table is caused by the lattice structure of the molecules. Water is liquid due to the interactions between H₂O molecules which are themselves neither wet nor dry. Similarly consciousness, intentionality etc. are caused by, or realized in, the brain, although individual neurons themselves cannot be said to feel pain or desire food.

Searle feels that the resolution of the mind-body problem will be similar to the resolution of the life-matter relationship. Just as it is now recognized that no addition of an *élan vital* is necessary to produce living things out of matter, so neither is it necessary to postulate the addition of some entity called mind in order to understand the nature of conscious things. In both cases one merely needs to enlarge one's concept of the potentiality of matter:

It should seem no more mysterious, in principle, that this hunk of matter, this grey and white oatmeal-textured substance of the brain, should be conscious, than it seems mysterious that this other hunk of matter, this collection of nucleo-protein molecules stuck on to a calcium frame, should be alive.¹

Searle believes, then, that dualism becomes redundant once one is prepared to enlarge one's concept of the characteristics of matter. Similarly the tension between the scientific account of reality as that which is publicly observable, and the every-day experience of consciousness as subjective and private, is dissolved when one simply extends the definition of science to include the whole of reality, including subjective, private states. Therefore all, according to Searle, is ultimately reducible to materialism and science. There is no more a mind-body problem than there is a digestion-stomach problem!

Some philosophical reflections on Searle's analysis

The lineage of Searle's hypothesis is not difficult to discern. It belongs to the family of identity-theory² and its grand-father is Spinoza who also rejected Cartesian dualism by extending the definition of matter to include consciousness.³ Any criticisms one may have of identity theory will also apply to Searle's views. Let us review, then, some of the philosophical problems inherent in identity-theory.

- (a) The analogies offered by identity theorists for the mind-body relationship (e.g. lightning/electrical discharge, morning/evening star, or Searle's water/H₂O molecules) break down in several important ways:
- (i) They are all publicly observable, whereas a mind event is only experienced by one subject and can (barring telepathy) be experienced by only that subject.
 - (ii) They are all observable through the five senses, not so minds.
 - (iii) We know a lot about the relationship between the two terms of each of the analogies, for instance, we know how a

1. J. Searle, *Minds, Brains and Science*, (BBC), p. 23, 1984. This book follows closely the substance of the Reith Lectures.

2. Beloff offers the following useful definition: 'The world consists of physical entities and physical space-time events. What, all this while, we have been calling the phenomenal facts are, it transpires, merely particular physical facts i.e. brain states and brain-processes, that happen to become known to us in a very special way, namely by direct acquaintance.' J. R. Smythies Ed., *Brain and Mind*, (Routledge, London), pp.36-37, 1965.

3. *Ethics* III II.

conglomeration of H₂O molecules form liquid water and how a suspension of water droplets produce clouds, but we know *absolutely nothing* about how certain neurons firing could possibly produce, e.g., a sensation or an intention. To put it another way, why should sugar taste sweet and not bitter or bland, or why should bleach smell pungent? Scientists do not have the genesis of an answer.

- (iv) The analogies are all of manifestly material entities, while minds seem ontologically different. Thinking of, for example, the sensation of anxiety, H. D. Lewis writes, 'We have to move by inference from the scientific description to a totally different type of reality to get to the feeling of anxiety. It is not a case of extending our knowledge simply at the same level of discourse.'⁴

As Karl Popper points out, the principle of Occam's razor should be respected, but not at the expense of the facts, and often the world seems stubbornly more complex than the principle of parsimony would prefer. Present examples might be the failure of scientists to make headway in the Unified Field Theory and the apparent multiplicity of sub-atomic particles. Similarly, Popper contends, it is inadmissible to claim that the mind-body problem can be evaporated by extending the definition of matter. After mentioning some of the points given above, he adds, 'We also have the dramatic and, from a physical point of view, strange changes that have taken place in the physical environment of man, due, it appears, to conscious and purposeful action.'⁵ Such stubborn facts should not be ignored or explained away. To borrow the lines of Louis MacNeice:

'World is crazier and more of it than we think,
Incorrigibly plural.'⁶

- (b) Mind, as understood by identity-theory has no practical rôle or function. In the context of evolution theory, mind has no survival value. It is otiose because the efficient functioning of the organism depends entirely on the correct operation of the central nervous system which is subject to purely physical laws of causation. In a radio discussion Searle attempted to meet this objection by arguing that evolution could have produced mindless zombies but such creatures would lack a certain behavioural flexibility and discriminatory power. The evidence he adduces for this claim comes from the work of W. Penfield amongst patients suffering

4. H. D. Lewis, *The Elusive Mind*, (London: Allen & Unwin), p.196, 1969.

5. K. Popper & J. Eccles, *The Self and Its Brain*, (London), p.61, 1977.

6. 'Snow'.

from *petit mal* epileptic fits. Evidently one patient, for instance, was able to drive his car all the way home whilst unconscious. However, he drove through all the red traffic-lights. Certainly one can agree with Searle that these patients indeed lacked flexibility and judgement while undergoing a fit, but this is presumably explicable in purely physical terms according to identity-theory, namely that parts of their brains failed to operate properly. It would seem that the practical rôle of the mind should remain an absolute enigma for identity-theorists like John Searle.

Some theological reflections on Searle's analysis

Identity-theory raises two extra problems for the Christian:

- (a) If mind is a function of the brain, how can beings exist who are pure spirit? Such beings, according to traditional Christianity, would probably include the angels (although throughout church history some theologians have ascribed subtle or ethereal bodies to angels) and would certainly include God himself. To be consistent, must the person who holds an identity-theory of man necessarily be an atheist? The answer is: no. The theist who is convinced of the truth of identity-theory has two options:

- (i) Adopt a form of pantheism if he is convinced that consciousness is necessarily caused or realized in a physical organism; the universe itself then becomes God's central nervous system.⁷

However, besides being heterodox, this view has two difficulties. The first is parallel to one of Hume's objections to the teleological argument for God's existence: the analogy between known designed objects and the universe itself is too remote to carry any weight. Similarly, there are just not enough similarities between the universe and known central nervous systems to give plausibility to the cosmic identity-theory hypothesis. Secondly, if the organic unity of the universe as God's central nervous system is stressed, it is difficult to see how sufficient autonomy for creatures over against God can be allowed.

- (ii) The second option is available to those who maintain that as a matter of empirical (but not logical) fact our minds are caused by our brains. That is, we are inevitably embodied, but the mind-body relationship is a contingent one so that it remains a logical possibility that a conscious, unembodied being like

7. This thesis is worked out in detail in Grace M. Jantzen's *God's World, God's Body*, (Darton, Longman and Todd, London 1984).

God could exist.⁸ An analogy might make the position clearer. Imagine a universe where all magnetic fields were caused by, or realized in, solid magnets, it would be foolish for the inhabitants of that cosmos to conclude that it is logically necessary that a solid magnet must exist if there is to be a magnetic field. After all, in the universe next-door there might exist magnetic fields which are caused not by solid magnets but by electro-magnets. Equally, it is logically possible that God's mind could be grounded in something other than matter, something which might be called 'spirit'.

- (b) If mind is caused by the brain, it would seem to follow that brain death entails the termination of mind, does this not seriously jeopardize any doctrine of immortality? This is not the place to review the extensive philosophical literature on the subject. Let it suffice to identify the main issues.

In contrast with dualism, which tends to view the self as a simple entity which constitutes the permanent sub-stratum of all experiences and memories, identity theorists usually perceive the self as a 'field' or activity (remember how Searle suggested that the mind-body relationship is not unlike the digestion-stomach relationship), or as Davies puts it, '... the relation between mind and body is similar to that between an ant colony and ants, or between the plot of a novel and the letters of the alphabet.'⁹ This view, of course, has affinities with Hume's concept of mind. Two corollaries seem to follow from this.

Firstly, a reconstituted central nervous system would seem to result in the same consciousness, just as a reprinted novel is the same story as the one out of print. Or to change the simile and to quote Penelhum, 'There is no need for persons to be regarded as necessarily continuous entities; they might exist like television serials do, in instalments.'¹⁰

Secondly, with this dynamic, process view of the self, identification becomes a subjective policy decision as with all complex entities (e.g. is the sock covered in darns the same sock that was given me new last Christmas before it developed holes?). The answers will depend entirely on human convention. On the identity-theory model I can either agree to say that it is the same person from womb to tomb, or concur with the character in T. S. Eliot's play:

8. This position is argued in, for example, T. F. Tracy's *God, Action and Embodiment*, (Eerdmans), 1984.

9. P. Davies, *God and the New Physics*, (Dent), p.83, 1983.

10. T. Penelhum, *Survival and Disembodied Existence*, (Routledge), p.95, 1970.

'Ah, but we die to each other daily.
 What we know of other people
 Is only our memory of the moments
 During which we knew them. And they have changed since then'.¹¹

Similarly it would be entirely a matter of convention whether or not one considered a post-mortem person who had been reconstructed *ex nihilo* (cf. Hick's 'replica' person¹²) as identical with his dead twin. Hick, of course, would be happy to give the new person the benefit of the doubt as would MacKay.¹³

I think there are two main problems with the re-creationist view of the afterlife, however, and its attendant view of the self as process or abstraction (cf. the plot of a novel). The first may be expressed like this: if identity is just a convention, the 'replica' view is tenable, but something rancours when the hypothesis is conceived existentially. Yes, I would probably be inclined to treat the 'replica' John as the real John I knew on earth and yes, the 'replica' John would probably feel that he was the real John equipped as he is with John's memories and character traits, but would the real, dying John have felt any comfort at the prospect that one day his replica would be created? I think he could reasonably feel no comfort at all. As far as he would be concerned, his being would permanently terminate at death. Existentially, likening me to the plot of a novel or a 'field' seems pitifully inadequate, although rationally I might be convinced. But the philosophical objections to Hume's dynamic view of the self will not go away: What is it that has the tendency to believe in a fixed self behind the changing panoply of experiences? Surely all my experiences are *mine*. Only a simple and enduring self can relate and unify experience in a manner that even sense perception requires. Without an ontological self there can be no moral responsibility because past actions are not certainly mine. And so on. The functional view of the self which is usually part of the identity-theory package is therefore both counter-intuitive and open to the same philosophical objections that Hume's views have encountered. If, on the other hand, the self is a simple ontological entity, a sort of Kantian 'transcendental unity of apperception', identity cannot be a matter of convention, the criterion for ongoing identity must be quite simply continued existence.¹⁴ This criterion would not be met if the self were annihilated and another self later created. The new self

11. *The Cocktail Party*, Act 1 Sc. 3.

12. See J. Hick, *Death and Eternal Life*, (Collins), 1976.

13. See e.g. D. M. MacKay, *Brains, Machines and Persons*, (Collins), 1980.

14. For further information on the philosophy of personal identity, see P. T. Mackenzie's article 'Beyond Identity and Imagination' in *Philosophy*, April, 1983.

could not be the same as the dead self because there would be no continuity of existence.

The other problem concerns the inadequacy of Hick's reply to those critics who point to the logical possibility of any number of identical 'replicas' being created: surely not more than one of the 'replicas' could be the dead John, but which one?! Hick responds by admitting that there would be a problem of identity if a number *were* to be created but as a matter of fact God never would create more than one, and provided that this is so, his hypothesis would hold. But this reply surely misses the point. Hick needs to show not that multiple 'replicas' *will not* occur but rather that multiple 'replicas' *could not* occur and this would only be possible if he accepted the notion of a substantial, simple self, or soul, one per person. And if he accepted this, his 'replica' theory would be obsolete because this soul would have to go on existing after the death of the body so as to be in a position to be re-embodied later.

But for the identity theorist who is unhappy with the 'replica' theory either because of the sort of philosophical problems just mentioned or because of the kind of theological objections expounded in, for example, Calvin's *Psychopannychia*, there is an alternative option. A 'middle C' may be played on a flute and then sustained on a recorder after the flute has been broken. Similarly, after death a person's mind could survive by being caused by, or realized in, a non-physical entity, perhaps something like the 'astral body' of spiritualist lore. If indicted for lack of evidence, the advocate could refer to the literature on ghosts and point out that these astral bodies usually occupy spaces unrelated to ours. If, however, this theory sounds too fanciful, one may resort to a view similar to that already advanced with regard to God's mind, that is after death we become pure spirit beings, devoid of any kind of form. This view becomes virtually indistinguishable from the standard notion of the conscious, intermediate-state prior to resurrection. Again the 'middle C' analogy suggests that the self is a dynamic, functional thing and the problems with this have already been discussed. Perhaps, however, a modified form of the astral body theory would be serviceable for those who contend that the self is a simple immortal entity. In any event, identity-theorists certainly need to clarify and defend their notion of the self.

John Searle on the freedom of the will

Again Searle recognizes a tension between our common-sense belief that we are free in the libertarian sense that whenever we make decisions there are genuine alternatives available to us, and the

scientific assumption that decisions are in fact caused by brain events which are in turn causally determined by physical processes. He rejects dualist interactionism as totally implausible. He asks whimsically, 'Are we supposed to think that thoughts can wrap themselves around the axons or shake the dendrites or sneak inside the cell wall and attack the cell nucleus?'¹⁵ He also denounces compatibilism which endorses the scientific notion of causality while insisting that we are nevertheless free when we are not constrained. Searle rightly concludes that 'compatibilism . . . denies the substance of free will while maintaining its verbal shell.'¹⁶

Searle feels constrained to endorse the scientific belief in what he calls 'bottom-up' causation, that is the belief that macro-features of objects can be explained with reference to micro-level phenomena. Some of his examples have already been mentioned—the solidity of wood and the liquidity of water. While admitting that one's decision, for example, to raise one's arm really does result in one's arm rising (a case of top-down causation), Searle insists that to give a comprehensive description of what is happening, one would have to go on to say that the top-down causation occurs only because the decision is grounded in neuro-physiology to start with. That is, ultimately all mental events are physically determined and are examples of the general scientific principle of bottom-up causation. He summarises, ' . . . on my view, the mind and the body interact, but they are not two different things, since mental phenomena just are features of the brain.'¹⁷

To be consistent, Searle reluctantly has to reject libertarianism although he admits that the sense of radical freedom is an inextricable aspect of an intentional action. In the light of science we can easily persuade ourselves that, contrary to common-sense, the earth is not flat but Searle contends that we just cannot accept experientially that we are not really free, because the sense of freedom is built into our very experience of an action, whether premeditated or spontaneous. In the nature of the case, then, we find that we simply cannot accept the scientific or philosophical arguments in favour of determinism no matter how cogent they are. As a philosopher he must affirm determinism but as a human being he must reject it. He is in a rather similar position to David Hume who found that as a philosopher he had to acknowledge the uncertainty of such fundamental concepts as physical causation but when he left his study he resumed the common-sense beliefs held by ordinary people.

15. *Op. cit.*, p. 17.

16. *Ibid.*, p. 89.

Some philosophical reflections on Searle's analysis

The notions of physical interactionism and downward causation in an ultimately bottom-up causal context will seem strange and baffling to many, but really the world is full of examples. For example, the water-heater/thermostat system is an instance of physical interaction. For cases of downward causation one might refer to the way certain characteristics of crystals influence the behaviour of sub-atomic particles as lasers and holograms demonstrate, or again to the fact that when stars reach a critical mass, they exert such an enormous gravitational pressure in their centres that some atomic nuclei fuse and form heavier elements. It is clear that Searle is correct when he maintains that such concepts of interaction and downward causation are compatible with the notion of a causally enclosed, purely physical universe. He is also right in concluding that given this view of the universe, no place can be found for libertarianism.

As a further point of clarification in the wider context of the mind-body debate, we should make a clear distinction between downward causation and downward explanation. To affirm the validity of the latter is to reject reductionism. It is to reject, for example, the view that man is nothing but a handful of chemicals. It is to insist that the significance of the whole can be greater than the sum of the parts. The failure to distinguish clearly between downward causation and explanation results in a certain lack of clarity in discussions of the self found in recent works like *The Mind's I*¹⁸ and *God and the New Physics*.⁹

Some theological reflections on Searle's analysis

As I have argued elsewhere,¹⁹ a theology which takes seriously human responsibility and the justice of divine retribution must reject determinism and must affirm a libertarian view of human choice. In the words of C. A. Campbell, '... a man can be said to exercise free will in a morally significant sense only in so far as his chosen act is one of which he is the sole cause or author, and only if—in the straightforward categorical sense of the phrase—he 'could' have chosen otherwise.'²⁰ Searle's analysis of the problem of freedom of the will is therefore unacceptable. The important point is that Scripture does not just assume that we find we must treat ourselves and each other as

17. *Ibid.*, p.26.

18. Composed and arranged by D. R. Hofstadter & D. C. Dennett, (Penguin, 1982).

19. 'The nature of man—Has the Ghost in the Machine finally been Exorcised?', *Vox Evangelica*, (Vol. XIII, 1983). Republished in *Faith and Thought*, 1984, 110, 140–155.

20. C. A. Campbell, *On Selfhood and Godhood*, (Allen & Unwin), p.98, 1957.

free (a position compatible with Searle's) but that an omniscient God, devoid of illusions, also treats us as responsible and therefore free, albeit possessing a limited freedom.

Must the Christian then reject identity-theory because it cannot entertain libertarianism? Again, the answer is: no. It is philosophically possible to accept the concept of downward causation within an indeterministic context. Indeed this is Popper's view. He believes that the universe is capable of real innovation. This may seem an odd idea but as Keith Ward observes, the alternative for the Christian is even more peculiar,

It is hard to imagine how properties can be genuinely new and emergent, but the notion of creation must be a mystery on any account, and it is perhaps even harder to suppose that everything that comes to be must already have existed [e.g. in the mind of God. cf. Augustine], and so there could never be anything new at all.²¹

Ward, himself, maintains that there is real innovation in the mind of God and also in human beings and the world.

It is also philosophically possible, then, to espouse libertarianist-interactionism, that is a libertarian form of identity-theory. The view would reject the idea that the universe is a causally-closed system and reject that all downward causation (e.g. an intentional act) is ultimately explicable in terms of bottom-up causation. It would insist that, from the objective viewpoint of the scientist, the subject's free choice would be observed as a physically uncaused, spontaneous brain event. This view has been ably articulated by Thorp in his book *Free Will*.²²

Conclusion

The substance of the 1984 Reith Lectures is indicative of the ascendance of identity-theory. The theory has not been proved, neither indeed in principle could it ever be proved.²³ As a hypothesis it is less credible than Searle's lectures would suggest. But it could be argued that it is attended by fewer problems than rival theories, like

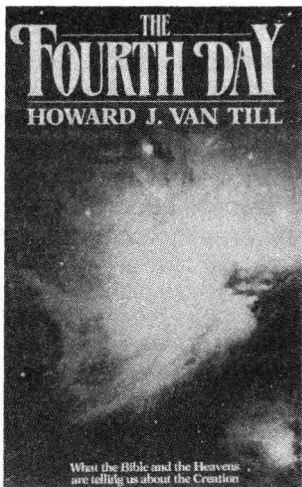
21. K. Ward, *Rational Theology and the Creativity of God*, (Basil Blackwell), p.156, 1982.

22. J. Thorp, *Free Will*, (Routledge & Kegan Paul, 1980).

23. How, for example, could it ever in principle be demonstrated that consciousness is spatially located in the brain? It has been shown by W. Penfield that the artificial stimulation of particular neurons of the brain result in certain subjective experiences, such as a memory flashing in the mind, but it seems impossible to prove that the memory-experience is actually occurring *in* those neurons, but identity-theory entails that this must be the case.

dualism.²⁴ When it carries a functional view of the self it runs into severe problems when attempting to accommodate a belief in the after-life. It has yet to be demonstrated whether it can coherently ally itself to a simple, ontological view of the self. However, presented in an appropriate form, identity-theory poses no threat to either the Christian doctrine of God or the notion of responsible choice.

24. An interesting third possibility is emergentism. See, for example, W. Hasker's 'Emergentism' in *Religious Studies* (Vol. 18, Dec. 1982).



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Fergus McInnes

God and the Ordered Universe: a computer software analogy

It was interesting to find, in a recent issue of *Faith and Thought* and the accompanying Newsletter, two articles, one by David Pusey¹ and one by R. E. D. Clark,² expounding different theories of the way in which God relates to his universe.

David Pusey develops a model of creation as a frame-by-frame projection from the mind of God. According to this model, God is continuously active as Creator, creating anew the state of the universe at each succeeding moment of time, rather as the maker of an animated film draws all the individual frames and projects them in rapid succession. The laws of physics that describe the events in the film are not built into the process of its creation, but are maintained by the specific decisions of the artist on all the details of the picture at each frame. 'The rational universe in which the scientists presume that we live is so, only for as long as God continues to act rationally, maintaining the apparently unbroken sequence of events.'

R. E. D. Clark refers to a view similar to the above, but argues against it on Biblical grounds ('the Scripture makes it clear that God has implanted laws in nature and it seems to be implied that these laws operate on their own'), and on the ground that 'if God is acting all the time directly and in every event' he must be 'a Being who is concerned in the main with trivialities' and 'to hold such a view of God is to depersonalize him'. In his contribution to the Victoria Institute's 1985 Annual Conference,³ R. J. Thompson quotes J. Houston,⁴ who likewise cites scriptural evidence for a finished work of creation followed by a distinct work of 'providence' or 'upholding'.

For the reasons given by Clark and Houston, I prefer this latter view, and I propose an analogy, drawn from my own field of work with computers, which may be helpful in elucidating the several modes of God's interaction with the universe as Creator, Upholder, Worker of Miracles and Incarnate One.

1. David Pusey, 'Creation as frame-by-frame projection from the mind of God', *Faith and Thought*, 1985, 111, pp.75-80.

2. R. E. D. Clark, 'Two views of God and his world', Newsletter of the Victoria Institute, no. 1, April 1985, pp.9-13.

3. R. J. Thompson, 'The Theology of Nature in the light of Creation, Fall and Redemption', *Faith and Thought*, 1985, 111, pp.145-160.

4. J. Houston, 'I Believe in the Creator', pp.106-7, 1979.

Consider all the particles of the physical universe as data stored and manipulated in a very large computer. Events involving these particles can then be thought of as processes running on the computer. The computer incorporates parallel processing, so that many movements and transformations of data can be occurring in it at the same time.

As Creator, God has loaded in the computer's initial data (assuming that the universe has a beginning in time—or at least something like a beginning in time: for time itself may be a created thing). He has also programmed in the 'system software' (what we know as 'laws of nature') by which the processes are co-ordinated. (Presumably he has also built the machine itself—though it is not clear what, if anything, this represents in the analogy.)

But God's involvement with his universe does not stop with creation. (That would be the position of a deist.) He also 'upholds all things' (Hebrews 1:3). This activity, which has often proved difficult to integrate with an understanding of the universe as having laws built into it, can be envisaged as his providing the power supply to the computer. This is a continuous activity, without which the universe would cease to exist (at least as an ordered system), as the information and processes in a computer are lost when its power is turned off. But it is also a simple activity, in that it does not involve giving individual attention to all the details of the processing at each moment—unlike the highly complex activity required of the artist in the 'frame-by-frame projection' model. The rules of the system software, once programmed in, take care of the details—but only so long as the system is 'upheld' by the power supply. These rules provide a complete account of the normal behaviour of the system at the software level; but that level is dependent for its continued existence on the continuance of the power supply at the hardware level. (It is an essential feature of this analogy that the material and events of the physical universe correspond entirely to entities (data and processes) at the software level, not the hardware level: it is this distinction of levels that expresses the relation between the scientific ('software') and theological ('power supply') answers to the question 'What keeps the universe going?')

Furthermore, as the 'system manager' of the universe, God from time to time provides input to it. On these occasions the course of events cannot be explained completely in terms of the normal rules and the data already in the system. (But what happens to the 'miraculous' input thereafter is determined by the system's rules in the usual way.) Such instances match the definition of 'miracle' adopted by C. S. Lewis in his treatment of the subject.⁵

Human beings, and other conscious created beings, can be thought of as users of the system. They are logged in at computer terminals, and can interact with the system at the software level, inspecting and (within the limits imposed by the system software) manipulating data. (Alternatively, they can be considered as highly complex 'artificial intelligence' programmes running within the system. Which of these variants of the model one prefers will depend on one's view of the nature of the soul (self or conscious being) and how it relates to the brain, the body and the material world at large.) They can deduce the rules embodied in the system software by observation and experiment; but they cannot by these means deduce anything about the hardware that supports the system or about its power supply. For information on these subjects, and on the origin and purpose of the whole system, they are dependent on messages or documentation from the system manager. (His sending such messages comes into the category of the 'miraculous'.)

In this analogy, the devil is a 'hacker' who is at work to lead the users astray and alienate them from the system manager. He has so far succeeded that many of the users do not recognise that there is a manager, and others have distorted ideas of his character and intentions. This has various consequences which are contrary to the purposes for which the system was designed and harmful to its users. To undo the damage, the system manager has chosen to log in for a time as an ordinary user. When he did this, he also remained logged in as the system manager with his special 'superuser' status and powers. As the ordinary user, he was then able to demonstrate to the other users the existence and nature of the system manager by communicating with him and calling on his power. (This possibility of multiple logins by the same person under different names provides an analogy, though of course an incomplete one, for the unity and differentiation in the Trinity.)

A possible objection to this analogy is that it appears to treat the laws of nature as prescriptive (miracles excepted) rather than descriptive, and deterministic rather than probabilistic. However, it can be answered that it is quite possible to conceive of a computer with randomness built into its operating system, and that even where the laws by which the universe actually operates are (barring miracles) prescriptive we may have only an incomplete concept of them, derived from limited observations, which must be treated as descriptive. (In real life, most users of computer systems work with mental images of the system software which are only rough approximations to the reality!)

How can God be said to act personally, specially, and with sovereignty? A definitive answer can no more be captured than we can snare the lightning which struck York Minster to test it for a divine spark. But we will surely keep straining to know and to believe as much as we can and should.

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This book deals quite specifically with the concept of special divine action from the standpoint of contemporary English philosophical theology. The issues are primarily theological and are treated at times with the tools of analytical philosophy. As such it is intended as a contribution to academic debate.

On the other hand, I have also tried to set the discussion in a wider context of general experience and biblical teaching. This, I hope, gives it more integrity, for the issues it deals with have arisen for me as much from experience and biblical revelation as from the narrow confines of academic debate. I hope too this may make it more accessible to the non-specialist reader.

As for the issues at stake, I have no doubt whatsoever that they matter desperately, both within and without the academic community. They happen to be specially topical at the time of writing, but I suspect they will always matter.

(FROM THE PREFACE)

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E. L. Larson and S. M. Larson

A Philosophy of Healing from the Ministry of Jesus

Most early cultures (Greek, Roman, Babylonian, Egyptian, Persian, Hebrew) viewed the human as a united body, mind, and spirit, with each aspect having influence on the others. In such societies throughout history, including many today, the priest and healer were the same individual. Only in recent times and in 'developed' countries like our own have the roles of healing the body and tending the mind and spirit been separated so completely.

(Science) is like what happens when we separate a jigsaw puzzle into its 500 pieces. The overall picture disappears. This is the state of modern medicine: It has lost the sense of the unit of man . . . Its discoveries are true; that is to say, they reveal valid and important facts. But they do not lead to a true understanding of man . . . (Nelson, p.54-55).

By a strange quirk of logic it is permissible to remove medically the results of man's sins, but it is not quite correct to believe that God will do it himself if asked in prayer or invoked through sacraments (Kelsey, p.223).

How did this dichotomy evolve? What should be the role of the contemporary Christian as a healthcare provider or recipient regarding the healing process? And what should we expect from ourselves, from the Church and from the medical profession with regards to healing? In this paper we briefly trace the history of medicine and healing through the Old Testament, during the life of Jesus, and throughout the development of the Church. We will then propose some principles to serve as guidelines for the place of the Church and the healthcare professions with regards to healing in the present day.

Medicine before Christ

The practice of medicine had little influence on the Hebrews of the Old Testament, since most healer-physicians also practised sorcery and magic or were members of pagan sects which worked in temples like those of the cult of Asklepios (also spelled Aesculapius). Although Asklepios was a historical figure who lived about 3,000 years B.C., the Greeks, and later the Romans, worshipped him as the god of medicine. Temples, in which the diseased came to sleep, housed priests who acted for the god and used religious suggestions to help

cure illness. Asklepios probably originated in Egypt as the magician Imhotep, but later was thought by the Greeks to be a son of Apollo. Hippocrates, born about 460 B.C., was a Greek physician who was among the first to question and remove much of the superstition surrounding disease and its cause. But cults, astrologers, and magicians continued to abound.

Therefore it is not surprising that the Hebrews, worshippers of the One God, did not seek medical care from pagan sources. Medicine is discussed frequently in all ancient writings except the Old Testament, where only once are physicians specifically mentioned. This reference reflects the negative attitude that the Hebrews held toward available medical care:

... Asa was diseased in his feet, and his disease became severe, yet even in his disease he did not seek the Lord, but sought help from physicians (2 Chron. 16:12).

The Old Testament teaches that Yahweh alone is the giver and taker of health. There are numerous specific examples of disease inflicted as a punishment for sin and disobedience to the commands of Yahweh (Table 1). The prevailing attitude was that since Yahweh controlled all that happened, it was not appropriate for humans to struggle against His will. If sickness came, Yahweh would heal if it was His pleasure.

Disease was not always associated with sin, however. There are several accounts of healing in which no blame is imputed to the sufferer. The leper, Naaman, 'a mighty man of valour', and Job, 'a blameless and upright man', are examples of disease not necessarily associated with wrongdoing. Interestingly, demons had no place in the Old Testament as a cause of disease, despite the fact that demon possession was mentioned as a frequent cause of disease during Christ's time.

Disease, then, was viewed by the ancient Hebrews as a personal infliction by Yahweh to teach a lesson or to punish, over which humans did and should have little control. This differed from the prevailing Greek attitude in which disease was viewed as an unlucky affliction from the gods, but it was impersonal, not necessarily due to any good or bad human act. They viewed disease as a result of fate or destiny.

From the Greek culture also emerged a philosophy called Gnosticism, in which the nous (mind) became trapped in the less desirable physis (body), which was not really essential. Gnostics strove to separate the pure mind from the evil body. This philosophy of body-mind dualism, totally in opposition to the Hebrew view of an

Table 1 Interventions in Health: Old Testament

Yahweh Inflicting Sickness:

Barrenness	Gen. 20:18	
Boils	Exod. 9:8-10	
	Job	
	1 Sam. 5:6	
Death	Gen. 38:9-10	
	Exod. 12:29	
Leprosy	Numb. 12:10	
	2 Kings 5:26-27	
Plague	Gen. 12:17	
	Numb. 11:33	
	2 Sam. 24:15	
General	Lev. 26:16, 25	Threats of disease
	Deut. 28:22, 27-29, 56-61	for disobedience
	Lev. 21:18-23	Nobody with physical
		disability permitted to
		approach altar

Yahweh Healing:

Boils	Job
Leprosy	2 Kings 5:1-14
Plague halted	Numb. 16:47-50
	2 Sam. 24:16
Raised from dead	1 Kings 17:17-23
	2 Kings 4:18-37
Snake bite healed	Numb. 21:9

integrated body-mind-spirit, was prevalent during Christ's time and has continued to influence the Church up to the present time.

Healing ministry of Christ

A surprisingly large proportion (about 1/5) of the accounts of Jesus' life are dedicated to His healing ministry. There are numerous accounts of specific healings as well as general references to the healing of multitudes (Table 2). It is interesting that there is no account of Jesus asking someone what they had done wrong before healing them. As a matter of fact, only rarely did He mention sin at all to a sick person, and even then it was without imputing blame. When a paralytic man was brought to Jesus, He said, "Take heart, my son; your sins are forgiven" (Matt. 9:2). Only when He perceived that the scribes around Him thought He was blaspheming did He heal the paralytic's body.

Table 2 Recorded Healings of Jesus*Specific Healings:*

		<i>Matt</i>	<i>Mark</i>	<i>Luke</i>	<i>John</i>
Blindness	1.	20:29-34	10:46-52	18:35-43	
	2.	9:27			9:1-41
	3.		8:22-26		
Demon Possession	4.			13:10-17	
	5.	8:28-34	5:1-20	8:26-39	
	6.		1:23-28	4:33-37	
	7.	9:32-33	12:22	11:14	
	8.	15:22-28	7:24-30		
Epilepsy, Palsy	9.	17:14-21	9:14-29	9:37-43	
	10.	8:5-13		7:1-10	
Fever, Death	11.	8:14-15	1:29-31	4:38-39	
	12.	9:18-26	5:21-43	8:40-56	
	13.				4:46-54
Leprosy	14.	8:1-4	1:40-45	5:12-14	
	15.			17:11-19	
Paralysis	16.				5:1-18
	17.	9:1-8	2:1-12	5:18-26	
Other					
a. Deafness	18.		7:32-37		
b. Dropsy	19.			14:1-6	
c. Hemorrhage	20.	9:20-22	5:25-34	8:43-48	
d. Withered hand	21.	12:9-14	3:1-6	6:6-11	
e. Replaced ear	22.			22:50-51	

General Healing of Multitudes:

12:15	3:10		
8:16	1:32	4:40	
13:58	6:5		
14:34			
4:23		6:17	
11:4		7:21	
9:35			
14:14		9:11	6:2
15:30			
19:2			
		5:15	
		13:32	

After healing the man who had lain for years at the pool of Bethesda, Jesus warned him to 'sin no more, that nothing worse befall you' (John 5:14).

Jesus believed that there was a force of evil in the world (demons,

sin) that resulted in illness, but was not necessarily related to an individual's good or bad deeds or position in the eyes of God. In His ministry, His attitude was that sickness *can* be caused by sin (obvious contemporary examples perhaps being venereal diseases or the myriad of syndromes resulting from substance abuse), but sin is not the only cause of sickness. His healing ministry is striking in that it has none of the moralistic character so prevalent in the Old Testament.

The 'Christian' attitude that glories in sickness is completely alien to that of Jesus of Nazareth; it is aligned on the side of what he was fighting against.¹

It seems evident that the power to forgive sins and the power to heal were for Jesus different aspects of the same ministry. Jesus did not go out of His way to heal people, there are no accounts of His healing anyone against their will (often He asked them if they wanted to be healed, Matt. 4:23-5:1; Mark 3:9; Luke 5:12-16; John 5:15-16). When He healed, it was usually out of compassion and it seemed to flow naturally. He did not heal to 'prove' His relationship to God or to 'make' people believe, and He was angered when this was suggested. Why then did Jesus heal? Because He believed that healing was good and that total health was the ideal will of God for all people, because He was full of mercy and compassion for the suffering of people, and because of His deep hostility for what made people sick.

If Jesus had any one mission, it was to bring the power and healing of God's creative, loving spirit to bear upon the moral, mental, and physical illnesses of the people around Him. It was a matter of rescuing man from a situation in which he could not help himself. Jesus disclosed a new power, a ladder to bring him out of the pit of his brokenness and sin. Leaving man in his wretched condition so as to learn from it makes no sense in this psychological frame-work. Judgment and punishment only add to a burden already intolerable.²

The coming of Jesus . . . wipes out once and for all the notion that God puts sickness upon men because he is angry with them . . . if sin had caused that misery, Jesus' attitude appears to have been; once this man is healed, perhaps he will come to his senses, but as long as he is sick it is difficult for him to come into a relationship that makes sense.³

Healing in the Church

The Book of Acts contains specific and general accounts of healings by disciples of Jesus (Table 3). The apostles carried on a healing

1. Kelsey M. T.: *Healing and Christianity*, New York, Harper and Row, p.90, 1973.

2. *ibid.* p.67.

3. *ibid.* p.97.

Table 3 Interventions In Health: New Testament After Jesus*Specific Healings:*

	<i>Acts</i>
By Peter	3:1-8
	9:32-35
	9:36-41
By Paul	14:8-12
	16:16-19
	19:13-16
	20:8-12
	28:8
By Ananias	9:17
By disciples	14:19-20

General Healings, 'signs and wonders':

2:43, 47
 5:12, 15
 6:8
 8:6, 13
 14:3
 15:12
 19:11
 28:9

Disease or Death Caused by Sin:

Ananias and Sapphira struck dead	Acts 5:1-11
Sorcerer struck blind	Acts 13:6-11
Christians ill because they took communion too lightly	1 Corin. 11:29-30

ministry apparently out of obedience to Jesus' command that they do so. Although they were often surprised at their success and sometimes even healed unwillingly,

... the Christian became a source of healing, essentially and simply as a continuation of Christ's life through his church ... it was understood that Jesus became what we are in order that we might become what he is. Healing was as basic a part of early Christian thought and experience as it had been in the life of Jesus.⁴

However, the moralistic attitude of the Old Testament, in which illness was seen as a direct result of sin, begins to emerge in the New Testament after the Gospels. The deaths of Ananias and Sapphira after lying are an example of sin being punished in the body. Paul described his 'thorn in the flesh' as being given to him by Satan 'to keep me from being too elated' (2 Corin. 12:7-9, RSV). Three other

4. *ibid.* pp.330-334.

times Paul mentions the illnesses of Christians who were apparently not healed in any miraculous way (Phil. 2:25–28; 1 Tim. 5:23; 2 Tim. 4:20). In these instances, however, their diseases were not attributed to any misdoing or sin.

The healing ministry of the early Church is described in the New Testament both as a special gift (1 Cor. 12:4–10) and as a responsibility and function of the entire Church (James 5:14–16). All of the Christian leaders in the First and Second Centuries (Justin Martyr, Cyprian, Tertullian) refer to healing as a natural part of the Church's ministry, although by 200 A.D. *Origin of Alexandria* noted that 'the power of healing diseases is not evidence of anything specially divine'.⁵

The Gnostic philosophy is mentioned throughout the history of the Church. The Second Century Docetists asserted that the physical world was evil. Augustine, Thomas Aquinas, and later Luther and Calvin, all expressed the opinion that the body was inferior to the spirit, a belief not really in keeping with the ministry of Jesus as portrayed in the Gospels.

By the Fourth Century, the institutionalization of healing is evident: religious orders were formed to care for the sick, healing became incorporated into liturgy, articles such as oil or water were blessed and expected to take on supernatural powers, and shrines to martyrs sprang up. By the Seventh and Eighth Centuries under the influence of Gregory, the Church more and more expressed the idea that illness was a punishment from God. After the Eighth Century, official services of the Church mostly rejected a place for healing. Aquinas taught that since God is known primarily through intellectual activity, such things as healing were not necessary or relevant. Prayers for the sick were used to remind them of their sins and help them toward repentance. The practice of 'extreme unction' for the dying replaced the earlier 'laying on of hands'. By the Thirteenth Century, sick persons were not to seek medical help until they had confessed their sins to a priest.

Thus the Christian Church developed an ambivalent view of the medical profession and of the role of healing in the Church. On the one hand, hospitals were formed and staffed almost exclusively with the religious, and yet scientific investigation and inquiry were viewed as a failure to accept God's will or even as the work of the devil like sorcery or black magic. Indeed, medical progress was hindered for years in the name of God.

5. Weatherhead LD: *Psychology, Religion and Healing*, New York, Abingdon-Cokesbury Press, p.77, 1951.

In 1248 the dissection of the body was pronounced sacrilegious and the study of anatomy condemned. Progress in medicine required dissociation from the Church, and the two healing streams—both of God—divided.⁶

Even today, The Book of Common Prayer of the Church of England expresses the belief that sickness is a visitation from God, a result of some wrong doing:

Wherefore, whatsoever your sickness is, know you certainly that it is God's visitation. And for what cause soever this sickness is sent unto you; whether it be to try your patience for the example of others, and that your faith may be found in the day of the Lord laudable, glorious, and honorable, to the increase of glory and endless felicity; or else it be sent unto you to correct and amend in you whatsoever doth offend the eyes of your heavenly Father . . .⁷

In the Middle Ages, healing came to refer to healing of the soul, not the body. A physician in the Eighteenth Century was denied the right to practise medicine if he treated a patient for more than three days when the patient had not confessed his sins. During this same time, people were seeking healing at shrines (as in the cult of Asklepios hundreds of years earlier). This practice continues today; two million people each year travel to Lourdes alone. English kings were anointed to attain divine power for healing. The English Prayer Book until 1715 contained a special prayer for the healing powers of the king.

By the end of the Nineteenth Century the views of Descartes, Newton, and Darwin were influential in the Church as well as secular life. The prevailing dogma was that the material world alone was real and that the world evolves according to rational and mechanical laws that can be explained. By the Twentieth Century, however,

Man's whole conception of time and matter and scientific truth were undergoing a traumatic change. The scientific method had not provided final and certain truth after all, but only hypotheses which could be overturned by new research and replaced with new understanding. Scientific 'laws' could no longer be seen as ultimate truths; they were like maps, increasingly accurate but still only maps of a territory that could never be fully known.⁸

The division of spirit and body and a mechanistic view of healing came not only from the Church and from philosophy, but also from the medical profession. Today, physicians in general would object to the idea that they are charged with treating not only an individual's disease, but also considering the health of the spirit and the effect of

6. *ibid.* p.88.

7. *loc. cit.* 1., p.16.

8. *ibid.* p.317.

the spirit on one's response to disease. Health is currently defined by the World Health Organization as physical and mental well being rather than just the absence of disease. If we accept this definition, it is quite possible to suffer from a disease and still be healthy. The purpose of medicine today is more often to treat disease than to move individuals toward health. Hence, many modern physicians do not even perceive themselves as healers, but rather as treaters-of-disease.

In contrast, the patient, while frequently expecting a specific and tangible treatment for disease, especially in the form of medication, also expects that the physician will offer healing in a broader sense. Patients leave the physician's office with a vague feeling of dissatisfaction or of being cheated by the brief and terse encounter with the 'healer'. The propensity of the public for litigation is perhaps a symptom of this dichotomy between the physician's and the patient's expectations of medical practice. Indeed, the likelihood that a physician will be sued is much more related to his/her personality and the extent to which the patient feels 'cared for' than to the quality of medicine practised.

Today, then, the Church's attitude toward healing is influenced by a number of divergent forces: science, which seeks to systematically explain natural phenomena and categorize events into knowable, understandable entities, as well as a variety of philosophic and religious views such as Gnosticism with its denial of the body, traditionalism of the Old Testament which personalizes all sickness as an individual visitation from God, and the unrestricted compassion shown by Christ in the Gospels, regardless of political or religious restraints.

Principles for healing today

It is our contention that in the ministry and teachings of Jesus there are basic principles essential for a meaningful understanding of the role of healing today—especially for those involved with the healthcare professions, either as practitioners or as clients. We will discuss here four of these principles which can help to guide our own practices.

Body and spirit are intertwined

Jesus clearly perceived the body and spirit to be closely related. He forgave sins and healed bodies almost in the same breath as a natural part of His total ministry. He made it clear that wellness is part of God's ideal plan for humans. And yet not all peoples are healed of disease; there is faith without healing and healing without faith.

Perhaps what Jesus was trying to communicate is that it is not correct to equate physical illness with God's favour or disfavour.

God does not cause our misfortunes. Some are caused by bad luck, some are caused by bad people, and some are simply an inevitable consequence of being human and being mortal, living in a world of inflexible natural laws. The painful things that happen to us are not punishments for our misbehaviour . . . we need not feel hurt or betrayed by God when tragedy strikes. We can turn to Him for help in overcoming it, precisely because we can tell ourselves that God is as outraged by it as we are.⁹

Likewise, it is not correct to equate absence of disease with health.

The medical profession is discovering that health is more than the absence of illness. For centuries doctors have been primarily concerned with pathology . . . But assuming that we knew all there was to know about disease, we still would not necessarily be able to make people well. Wellness is more than the absence of illness.¹⁰

We believe that what the ministry of Jesus reminds us is that people are a totality of mind, body, and spirit.

Not method but redemptive concern lay at the heart of His ministry—concern that encompassed the whole man—the making of the whole man, whole. The physician, if informed and alert to the modern implications of his vocation, cannot miss this real point of identity with Christianity's real figure.¹¹

We need skilled healthcare professionals with particular knowledge to treat disease and alleviate pain, but we need to remember that health is more than the absence of pathology and that a whole person is being treated, not a sick body.

The peoples of the world today are tired of an intellectualized culture which makes great discoveries, does fine things in theory, but has ceased to help them in leading their real lives. They are weary of scientists and scholars who become more and more learned, but shut themselves up in their studies and abdicate their responsibilities as the guides of mankind, because all their science does not help them to know where they themselves ought to be going . . . We must stop thinking that the spiritual world has nothing to do with science, psychology, politics, commerce, or medicine.¹²

While health is not the totality of human wholeness, it is a basic

9. Kushner H. S.: *When Bad Things Happen to Good People*, New York, Avon, p.132, 1981.

10. Larson B.: *There's A Lot More to Health Than Not Being Sick*, Waco, Tx., Word, p.20, 1981.

11. *loc. cit.* 1, p.363.

12. Tournier P.: *The Healing of Persons*, New York, Harper and Row, p.279, 1965.

component. While physical healing is not the same as personal healing, it is intrinsically related. And while creative medicine will not usher in the kingdom of God, it can contribute significantly to that fuller realization of our common humanity, which is both a gift and an achievement.¹³

Care, compassion, benevolence

The important place that physical healing held in the ministry of Jesus was because He was moved with compassion at the sufferings of humans around Him. He did not allow religious dogma or political expediency to hinder Him, even when it meant the disfavour of influential individuals. Jesus was eventually killed as a result of accusations that He was a magician and blasphemer. Healthcare personnel today are also influenced by the politics of health. Cost containment, priority-setting for limited resources, rapid technologic advances, and the pressures of personal advancement can mask the basic reason for existence of the 'helping' professions. The caring, co-operative attitude of the healthcare professional can quickly disintegrate to a superficial paternalism without continuous renewal and remembrance of the need for compassion and benevolence.

The Church and its individual members also have a responsibility for healing.

Protestantism, with its intellectual, didactic tendency, has concentrated too exclusively on preaching and collective action. I think that in order to be true to its mission it ought to recover the sense of the individual cure of souls.¹⁴

In the early Church it was not possible to be passive and be a Christian. And today, the ministry of the Church requires active participation and hard work of its members, so that caring and compassion are demonstrated in practice.

True spiritual healing demands another kind of preparation altogether. Let a fellowship be formed of convinced, devout and sensible people. Let them regularly pray together. It may be necessary for them to live together for periods. We forget that the disciples lived together for three years, and lived with Jesus, and even then were weak and undependable.¹⁵

Freedom of choice

There is no indication in the Gospels that Jesus ever sought out

13. Nelson J. B.: *Human Medicine*, Minneapolis, Augsburg Publishing House, p.189, 1973.

14. *loc. cit.* 12, p.232.

15. *loc. cit.* 5, p.488.

people to heal. They came to Him, and when they did, He frequently asked them if they wanted to be healed. Indeed, when faith was totally lacking, Jesus was not able to heal. Being sick is a very personal all-engrossing state and sometimes people become comfortable in that role. When people choose sickness, no therapy can be successful. Before Jesus healed the man who had been lying by the pool of Bethesda for 38 years, He asked him if he wanted to be healed. It is difficult to believe that, if he had really wanted to get into the pool for healing, the sick man could not have elicited enough sympathy among passers-by so that he would not have had to wait for 38 years. Hence, Jesus sought the man's active participation. The implication is that if the man had said he did not want to be healed, Jesus would and/or could not have helped him.

Becoming well after a long bout of illness is risky and takes courage. One no longer has the excuse of sickness for weaknesses or failures. And some may not have the strength or will to struggle to get well.

I have to tell you that I am afraid of feeling myself becoming normal. I feel everyone is going to take advantage of me, treating me unkindly . . . I am defending myself in advance.¹⁶

One physician has taken an extreme position on the issue of freedom of choice.

The concept of medical care as the patient's right is immoral because it denies the most fundamental of all rights, that of a man to his own life and the freedom of action to support it. Medical care is neither a right nor a privilege: it is a service that is provided by doctors and others to people who wish to purchase it.¹⁷

Though most of us would tend to argue in the opposite direction—that medical care is morally all people's right—it is important to recognize that Jesus not only respected each person's right to choose between health and disease, but even required that they choose. It is not the prerogative of healthcare personnel to choose therapy for patients. Whether people think they want to or not, they must be involved in decisions regarding their health.

Equal access

There is a most moving account of a woman who begs Jesus to heal

16. *loc. cit.* 12, p.243.

17. Sade R. M.: Medical care as a right: a refutation. *New England Journal of Medicine*, 1971, 285(23), p.1289.

her daughter (Matt. 15:22-28). He does so despite the fact that she was a Gentile, not a member of the Jewish people to whom He belonged. Jesus commanded the disciples to give freely, as they had received (Matt. 10:8). Neither Jesus nor His followers discriminated in their choice of who to heal on the basis of income level, religious or political persuasion, or ethnic background.

In our healthcare system today attempts have been made through government subsidies, free clinics, etc. to assure most individuals of access to at least a minimum standard of preventive and therapeutic health services, but that is not the issue here, since most of us are not in a position to directly influence government policy. Rather, it is in our individual attitudes and approach to clients (as healthcare personnel) and to each other (as members of the Church) where we begin to see ways in which we can minister, not necessarily in the same manner to all people, but equally.

It has been said of medicine that its duty is sometimes to heal, often to afford relief, and always to bring consolation. This is exactly what the Bible tells us that God does for suffering humanity. Sometimes God heals, but not always. But He gives relief, He protects and sustains us in times of affliction; and His consolation is unending. Here too we may say that the doctor in his vocation works hand in hand with God.¹⁸

In summary, Jesus' ministry serves as a model for the Christian healthcare provider and client. The principles of the integration of the body-mind-spirit, care and compassion, freedom of choice, and equal access, sometimes obscured in today's healthcare system, can serve as the foundation for the practice of healing in our professional and personal lives.

18. McLenden W. W.: *Medicine of the whole person and the laboratory physician*. In Paul Tournier's *Medicine of the Whole Person*, Waco, Tx., Word Books, 1973.

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'In the beginning ...'

The Science and Religion Forum held a conference at Westminster College, Oxford, from 28th to 30th March, 1985. The sub-title of this was 'The science and pseudo-science of creation', and five main speakers were each given an hour to introduce their subject before discussion was entered into. There was also time for a few short communications. The Science and Religion Forum exists to meet the need for communication between those who have an interest in science-religion relations, and a wide range of scientific expertise and religious belief is represented in the membership. Reviews are published quarterly, and conference papers are also written up. What follows below is one attendant's view of the 1985 meeting, culled from notes taken at the time, though written up later.

Professor Langdon Gilkey of the University of Chicago was the first speaker, and had the distinction of being deeply involved in the 1981 legal battle in Arkansas over the teaching of 'creationism' as a science vis-a-vis a system of belief. He challenged the former view, invoking the First Amendment, viz., the law forbidding the teaching of religion in U.S. schools. Gilkey summarised the tenets of creationism as: creation *ex nihilo*, creation of separate 'kinds' from the start, a separate creation of men and apes, the explanation of geological data by universal catastrophe (flood), and a 'young' earth.

Professor Gilkey claimed that the creationist reaction had been induced by the elevation of science to a status which theology once enjoyed. Scientific thought and culture now permeates all society, especially western society. Students who visit from other cultures are taking back to their countries western views, and this tends to produce a fundamentalist reaction, e.g. in Islamic culture. One basic problem is that fundamentalists and evolutionists claim that their view of science is the only one. Scientists are rarely taught the history of their subject, which is really essential to an understanding of its cultural background. Creationism can be excluded as a science since it is not open to empirical observation and experimental testing. But equally, science is limited, and does not exclude or replace a religious viewpoint. The creationist reaction is a response to the explosion of scientific culture rather than to liberalism. People are uncertain of their beliefs, and of what the Church teaches. The religious backlash, when it comes, tends to be fanatical and authoritarian. If science can be blind without its sibling, the humanities, religion can be destructive and intolerant; we must be on

our guard against extremes. The health of science depends upon the health of the culture which contains it.

Dr. Eileen Barker of the London School of Economics raised the question—'Does it matter where we came from?'. She claimed that most people now accept an evolutionary view of creation, albeit under God's control, and that man is distinct from animal in some ill-defined way. Creationists, though they may differ in degree, are all agreed on *ex nihilo* creation of distinct 'kinds' of creatures. They fear that any other view leads to a 'slippery slope' when interpreting scripture. Evolutionists fear that the acceptance of a 'young earth' will lead to the abdication of astronomy, cosmology, and much besides.

The issue of 'where we came from' is not a burning issue in the U.K. as far as the general public is concerned. However, the Genesis account seems to be rejected by most, and attack upon the evolutionary viewpoint is met by much opposition. Creationists need much courage. So long as people's assumptions are not challenged, the question of origins is relegated to the background. Once challenged, however, it is surprising how deep-seated attitudes can be. Usually people have quite mixed-up views on such matters, selecting what to believe.

A danger in the creationist case lies in its inflexible attitude to scientific knowledge, which is continually changing. The evolutionary view is exciting because of its fluidity. In the field of ethics, the creationist points out that both Marx and Hitler used Darwinism to bolster their cause. Literalism at least offers absolute standards.

Dr. R. G. A. Dolby, from the University of Kent, attempted to draw the distinction 'Science and pseudo-science'. He traced the recent history of the scientific method, and proposed certain criteria for a science to be so-called. On these criteria, however, it is impossible to exclude creationism or evolutionism. There are gradations of 'fitness' to the criteria; it is difficult to define criteria which mark science from non-science. On balance, it would appear that creationism is archaic science rather than pseudo-science. Whereas scientific philosophy is continually changing, creationism has not changed since the 18th century. This is attractive to some, because the object of creationism is clear, whereas scientific development is open-ended. Dogma only arises with the later testing of data. There is always a danger of rigidly-held views, and the instance of the supposed correlation of heritability and I.Q. is an example of this. Dr. Dolby entered quite deeply into the philosophy of science at the rational, psychological, and social levels, but this cannot be further elaborated here.

Dr. G. Brooke from Manchester University addressed the subject, 'Creation in the Biblical Tradition'. Dr. Brooke is an expert on the

Dead Sea Scrolls, and his talk was concerned with the relevance and significance of records. Archaeological and literary 'finds' have led to some doubts concerning the uniqueness of Israel's revelation. This has in turn led to questions about the Biblical viewpoint, The Genesis account then should be looked on as literature, and seen in its cultural setting. The question is, what kind of literature? Dr. Brooke discussed matters such as myth, culture, prophecy, and the wisdom literature. In fact his talk was a wide-ranging discussion of the Old Testament creation literature, especially stressing the 'Priestly' (P) source, that is Genesis 1 to 2, 4a. The priestly author speaks of God, and to praise him is to live in his blessing. God is in charge of order *and* chaos. Humanity, as part of creation, has been given a royal priesthood, and the creation language of scripture turns the scholar into preacher.

The final speaker, Dr. Mary Midgely was formerly at the University of Newcastle. Her subject was 'Scientism, and the worship of Evolution', which was presented with characteristic vigour. She suggested that evolutionism is the creationism of our age. It has been exalted to the status of a religion, with attendant dogmas and predictions. Some scientists are proposing a special 'man' will arise in the next 10,000 years—a super-intelligence. Since this time span is too short even for evolution, presumably the 'man' will come from genetic engineering. Bernal and Wells both claimed scientists to be a new, special, species, and although this view suffered a set-back in World War II, it has re-emerged as super-intelligence. On this view, I.Q. is all-important, but is this to be genetically controlled? It is ironic that the evolutionary scientist claims the necessity of 'faith' in the future. In fact, the modern evolutionary theory shows all the marks of a religion, with attendant ritual, sacrifice, etc, and this can be dangerous. Unlike commitment to a sport such as golf, the commitment to science as a faith affects life's decisions. Again the warning is sounded to the age—keep awake.

Among the short papers, Michael Roberts traced the roots of creationism over the last 25 years, claiming that these were found in the Renaissance rather than in the Reformation. A. T. Jones reviewed the creationist movement initiated by Kuyper in the Netherlands, which ante-dated the U.S. trend by many years. Kuyper argued for a Christian perspective over *every* sphere of activity. Dr. Jones claimed that the evolutionary viewpoint could be traced back to the Greeks.

David C. C. Watson was concerned to dispute the views of Henri Blocher in his book 'In the beginning'. Another review of Blocher's book is to be found in *Faith and Thought* (Volume 111, 109, 1985).

A very practical slant was given to the meeting by Canon Jenkins, who described the project in Liverpool whereby to apprise the man-

in-the-pew with modern developments in science, religion and ethics.

In conclusion, it may be said that this conference was notable for the breadth of coverage of the topic. This will be apparent from the brief, and inadequate, review which has been presented above.

A. B. ROBINS

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Thomas F. Tracy, *God, Action and Embodiment*, Eerdmans, 1984. 181pp. Paperback. £10.60

This book is a meticulously-argued attempt to match a thorough-going doctrine of the immanence of God with the traditional doctrine of *Creatio ex nihilo*. Tracy is aware that much transcendental theology more or less excludes God from any effective role in the world now. He is also aware of the threat Process Theology raises for many fundamental Christian doctrines of creation and the nature of God. This thesis is a painstaking treatment of these tensions.

Tracy's answer is to focus on God as Agent, indeed as the 'perfection of agency', a personal Being who acts purposely in the created order, and perfectly, without the limitations humanity lays on human beings as agents.

The first half of the book analyses human agency as a model for the activity of God—the ways in which we regulate our behaviour by our intentions, but with genuine freedom over against concepts of dualism.

Then in the second half Tracy applies these conclusions about human agency to the doctrine of God. His preferred concept is of God as the Perfection of Agency: a self-creative Agent who has infinite power, wisdom and freedom, who can bring perfect integration to his activity. What he offers is a philosophical theology of divine agency in the world. In the process he faces and argues through many of the philosophical issues raised by biblical theology. It is undoubtedly a painstaking, thought-provoking and important piece of work, though sadly one has to add that it is almost unreadable to the non-specialist. Its potential readership, therefore, is very small.

DAVID WINTER

N. Wolterstorff, *Reason Within the Bounds of Religion*, Eerdmans Publishing Company, 1984. (Second Edition), 161pp. Paperback. £4.40

This is an expanded version of a book originally published in 1976. The author has adopted the simple expedient of making the earlier edition Part 1 of the later, and adding new material as Part 2. My immediate response was to regret that the contents of the book did not show a corresponding simplicity and comprehensibility. Subsequent re-reading has done nothing to change my mind.

Professor Wolterstorff is Professor of Philosophy at Calvin College Michigan. He is both a scholar and a Christian, and it is the bearing of

the Christian faith upon matters of scholarship which is the theme of the book. Part 1 deals with the relationship between Christian commitment and the views a scholar holds, or ought to hold, as a Christian. Part 2 discusses the bearing of the Christian faith more specifically on the decisions scholars must make about which subjects to investigate.

Unfortunately, only the Christian philosopher, such as the author himself, is likely to derive a great deal from this book. Whereas many of us would qualify on the first count, being Christians, we would not on the second, not being philosophers of Wolterstorff's scholastic level. The author claims his book is a 'tract for Christians', and this is clear, but I believe he is wrong in thinking that non-philosophers 'will find it comprehensible and illuminating'. That is precisely what it does not seem to the non-specialist. The Professor allows that two sections are 'tough-going', and can be skipped over. Probably most of us would find all of it tough going. Skipping page after page, hoping to grasp something tangible and recognizable becomes the method of reading this book. One section struck me as valuable, in the sense that I understood immediately what was being said, and profited from it. In 'learning for Shalom', the author asks, 'what is God's goal for human existence, to which human beings are called to contribute?'. A worthwhile question I think, and Wolterstorff provides an interesting answer of his own—the re-assertion of the Biblical concept of peace. To dwell in peace is the goal of all man's relationships.

I can only wish that much more of this book showed a comparable clarity and immediacy of language and concept. It might be that Professor Wolterstorff would be more convincing as a 'simple' Christian apologist than as a Christian philosopher. Admittedly I do not share his degree of philosophical expertise, but my contention would be that I am not alone in this. The book is very much for the specialist, more so than the author allows. For the Christian, as opposed to the Christian philosopher, his religion surely seems to contain more reason when he can understand its concepts, and see their relevance to the human situation.

A. C. COLLIER

G. Twelfree, *Christ Triumphant*, Hodder and Stoughton, 1985. pp.252. Paperback £5.95

There is much controversy within the Christian community regarding exorcism: the churches have themselves produced official reports or guidance on the matter. This volume attempts to lay the contention to

rest by a simple argument. First, it is clear that exorcism is a widely practised form of healing assured in the New Testament world (as before) and employed by Jesus. Second, the Early Church built on her experience of Jesus and his commission to her to assume power in his name, so that she too expected to exorcise. There is plenty of biblical evidence that she did so successfully. Thirdly, the twentieth century, it is often assumed, has emerged from the largely ignorant world which tolerated exorcism, with a new, rational, scientific perspective in which exorcism has no place. But this is not true. One has only to look around one and read the relevant literature to see that exorcisms take place. Therefore, the crucial questions are, How do we recognize the relevant circumstances for exorcism? How is exorcism to be practised? And for this we have the pattern of the ministry of Jesus.

There are some problems. First, the fact that Jesus believed in demons, even if true, no more justifies us in believing in them than in anything else to which Jesus apparently gave credence. For example, if Jesus assumed that his death would bring about a new kingdom on this earth, he was obviously mistaken. Inspired by his witness to the reality of the presence of God, Christians have therefore rethought their understanding of 'kingdom'. We can do the same with 'demons'. If we understand that a main theme of the New Testament witness is 'God is present in Jesus', and that God as creator and redeemer will fulfil his purposes, then they worked that out in the world as they knew it, and quite rightly so. We now do it in ours.

Secondly, a scientific world view would indeed do well to recognize that there is much that is strange which it does not as yet fully comprehend. Furthermore, it behoves us to accept that there will always be those who are prone to account for their experience by reference to world views which have no descriptive or predictive significance: short cuts to salvation have had, and probably always will have, an attraction to every human being. These intellectual and psychological considerations do not, however, constitute grounds for believing in the reality of demons and the importance of exorcism.

Thirdly, as an example of theological methodology the argument lacks credibility. No conclusions can be drawn from the world of the Bible for later ages without a great deal more subtlety and insight than is offered here. Questions of ontology need to be separated from questions of epistemology; and matters of faith from matters of fact. Indeed a marvel of the Christian tradition is its creativity and capacity for self-criticism in every culture; it has grown and developed while retaining its roots, over twenty centuries. We will not discern its reality or its future by applying the first century directly to the rest.

It is like putting fuel on the tyres and hoping the car will work. Where's the engine! Where's the process!

I said there were problems: they are fatal.

K. WILSON

W. Telford (Ed.), *The Interpretation of Mark*, (Issues in Religion and Theology 7), Philadelphia: Fortress Press, and London: SPCK, 1985. 180pp. Paperback. £

This is the latest in a series of books which aim to introduce students to important, controversial subjects in religion and theology; in fact all the books so far published deal with biblical topics. In each case an editor provides a survey essay on the whole field and then offers his own selection of important articles (or extracts from books) which are typical of recent scholarship. Dr. Telford, who is the author of a book on *The Barren Temple and the Withered Tree* (Sheffield; JSOT Press, 1980) which deals with the problems of Mark 11, is well-qualified to assess the recent trends in study of the Gospel. His 41pp. introduction is an excellent survey of recent Marcan scholarship. He sets out the broad background of study from the late nineteenth century onwards before summarising in greater detail the discussion of the Gospel since about 1960. Questions of genre, sources, literary criticism and theological purpose predominate. It quickly becomes apparent that the major concern today is with the Evangelist himself and what he was trying to do in the context of his church situation. What kinds of view of Jesus were abroad, and how was the author responding to them? In this situation the question of the historical basis behind the Gospel falls into the background; the assumption is that, until we have clarified what the author was trying to do as an author (and indeed, what was the nature of the material which he was using), we shall not be able to penetrate backwards to the historical Jesus, material about whom may possibly at least some parts of the Gospel.

The various essays that have been gathered together are indicative of this trend. S. Schulz discusses the character of Mark as the first attempt to write a gospel. E. Schweizer summarises the theological achievement of the Gospel by means of a study of key words and an analysis of the progress of the narrative. K. Kertelge argues that the Evangelist wants the readers to see that Jesus can be properly understood only as the Risen One. In a highly controversial study T. J. Weeden argues that the disciples are presented in the Gospel as bearers of a heretical understanding of Jesus that the author is combatting. On the other hand, R. Tannehill shows how part of Mark's

aim is to use the story of the disciples to teach his readers important lessons about themselves. N. Perrin argues that Mark uses the title Son of Man to express his own understanding of the person of Jesus. Finally, there are a couple of literary studies. J. Dewey finds a distinctive, chiasmic structure in the five controversy stories in 2:1-3:6, which leads her to conclude that Mark himself invented the story in 3:1-6 to balance the story in 2:1-10. E. Best looks for various literary pointers which may indicate where Mark has preserved tradition rather than created the Gospel material.

Theological and literary topics thus predominate, with an emphasis on christology and the disciples. It is apparent that perhaps a majority of scholars find it extraordinarily difficult to work back from the Gospel to the historical Jesus, that many believe that much in the Gospel is not historically based, and that many now find the centre of interest in Gospel study to be the setting of the writers in the early church and the way in which they used the church's traditions to convey their own theological perspective on Jesus. Nevertheless, Dr. Telford does mention in his essay that a number of scholars claim that Mark was a conservative redactor or editor of the material which he used, and it is a pity that it was not possible to include any writing by R. Pesch in the volume, since in his massive German commentary (surely destined to be the standard work on Mark for some time) he is ruthlessly critical and yet time and again comes to a remarkably positive estimate of the historicity of the underlying material in the Gospel.

There is of course nothing wrong with study of the Gospel at the level of the author rather than of the historical subject-matter. It is important from a theological point of view that we learn how the early church understood Jesus, since this understanding is part of God's revelation to us. It is also important historically, since, if the author has interpreted the traditions, we need in effect to peel off the layers of interpretation to get down to the underlying history. Conservative Evangelical scholars have, therefore, played their part in this process, and indeed one of the best guides to this kind of study is Ralph P. Martin's book *Mark: Evangelist and Theologian* (Exeter: Paternoster Press, 1979). The danger is when people argue that the historical Jesus is inaccessible, or was very different from the church's picture of him, or is irrelevant; all that we have is the effect that this unknown figure had on the early church. This comes dangerously near to saying that the interpretation can stand even if it is not an interpretation of anything real or contradicts historical reality; it certainly misunderstands the early church which thought that the historical reality of the incarnation, atonement and resurrection was of

cardinal importance. The other danger is that, when scholars concentrate on Mark as an author in his own right, there is a subtle temptation to exaggerate his role. Mark may, after all, have been a rather conservative redactor, as C. E. B. Cranfield and R. Pesch from their very different points of view have both argued; that may be less exciting for students of redaction criticism, but scholarship is concerned with truth, not with excitement.

If this book faithfully reflects the state of modern Marcan scholarship in regard to interest in Mark as an author, it also does so in indicating that there is still a notable lack of consensus among scholars regarding the nature of what Mark was doing. The provocative essay by Weeden, for example, rather stands on its own and has not generally found favour among scholars. In an appendix to his essay E. Schweizer also comments that his position and that of S. Schulz are almost diametrically opposed.

Dr. Telford's book appeared almost simultaneously with a collection of essays by M. Hengel (*Studies in the Gospel of Mark*, SCM Press, 1985) which are decidedly friendly to the authorship of the Gospel by John Mark (which most of the contributors to the former work would deny) and to the historical value of the Gospel. It is clear, therefore, that his book does not represent the last word in Marcan scholarship but it does offer a most helpful guide to much of the present state of play. Students will find it extremely valuable.

I. HOWARD MARSHALL

G. Carey, *The Meeting of the Waters—A balanced contribution to the Ecumenical Debate*, Hodder and Stoughton, 1985. 188pp. Paperback. £4.95

I was a little puzzled to know what contribution this book was making, apart from gathering together the facts, as the author sees them, of the Reformation disagreements, divisions and polemics, and an attempt to assess, from an Evangelical viewpoint, any movement from the Reformation position that can be seen in the findings of the Second Vatican Council, and the comments of some well known critical Roman Catholic theologians.

The rehearsal of the Reformation period makes sad and very mournful reading, and most of us who know something about it . . . and it will not mean much to those who don't, . . . would think that there is little profit in it. This is especially so, since the book is written from the point of view of a simple Protestant/Roman Catholic divide, and there is hardly any recognition of the wide divergence and disunity

between the various Churches which are not Roman Catholic and therefore 'Protestant'.

Perhaps we should not expect any new thought in this very brief and popular assessment apart from the obvious gain that the writer himself an Evangelical Anglican, can feel so strongly the need for ecumenism and attempt to chart the movement towards unity. This is part of the Christian ethos of our times, and I could have wished that there was more evidence given of movement in the 'Protestant' camp to that end. It is surely not the 'Protestant' position that only R.C.'s have to move if unity is to be achieved.

The experience of oneness in the charismatic movement which has meant much to the author is part of today's willingness, even eagerness, in some quarters for unity, but, as he says, this is a minority view, and elsewhere there is much apathy.

The final chapter 'Harbour in sight' is worth reading and pondering, especially his thoughts on a 'Hierarchy of truths'.

D. A. TASSELL

A. Walker, *Restoring the Kingdom*, Hodder & Stoughton, 1985. 303pp. Paperback. £5.95

Dr. Walker has spent considerable time investigating the House Church Movement in this country, 'because they are the largest and most significant religious formation to emerge in Great Britain for over half a century' (p.20). He has chosen to describe the phenomenon as Restorationism because its leaders 'wish to restore or return to the New Testament pattern (as they see it) of the Early Church' (p.22).

This book, written by a Research Fellow in the Department of Christian Doctrine at King's College, London, is a thorough examination from the perspective of a trained sociologist. He has personally interviewed most of the leading figures in the movement, including those in what he calls its two streams—Restoration One and Restoration Two (R1 and R2 for short). In R1, a far more precise and organized grouping based in Bradford, the leading lights are Bryn and Keri Jones, (brothers from a Pentecostal background in South Wales), Terry Virgo and Tony Morton. Arthur Wallis has had major influence on both streams, being the man with the original vision of a 'restored Kingdom' and also the one who has exercised a determinative influence on the way that vision unfolded.

R2 is more diffuse in its identity and influence. Dr. Walker describes these as 'the less structured churches affiliated to John Noble, Gerald Coates, David Tomlinson and their associates'. He also

stresses that there are several similar groups, such as the Basingstoke communities and groups in Somerset under John MacLauchlan, which are not attached to anybody but which have a similar vision and *raison d'être*.

In tracing the historical development of the Restoration churches, the author explains the fundamental convictions which give them direction and vitality. 'Restorationists see themselves as Evangelicals and Pentecostals, but in a new radical mould'. Denominationalism—and the denominations—are rejected as not being in the plan of God. Christians are called to live in 'a kingdom run according to God's order and rules' (p.22), and this requires total commitment both to Christ as Lord and to 'house-rules' on behaviour, beliefs, worship and a pattern of recognised leadership.

This last subject is the lynchpin of the Restorationist movement. It is affirmed strongly that the church should be run by divinely appointed apostles prophets and elders. They have developed a doctrine of 'discipleship' or 'shepherding', whereby church members submit themselves to those deemed to be their overseers and spiritual counsellors.

Dr. Walker's book certainly gives the impression of a group of extremely powerful men, powerful in personality, influence and zeal—who face all the normal problems of wanting, holding and keeping power. The authority-structures of Restorationism seem to owe as much to the needs of such men to hold power as to the teaching of the New Testament. It would also be naive to ignore the desire of many people to receive such strong and close shepherding: whether that desire is a desire of the Spirit or of the flesh is rather a moot point. In other words, the Restoration churches are actually in no different a position from any other church—yesterday, today or ever.

However, Dr. Walker presents a sympathetic and helpful case against those who revel in horror-stories about heavy discipling and authoritarian leadership in these churches. He has investigated many such claims and found them either inaccurate or unsubstantiated. At no stage did he encounter any protectionism or furtiveness amongst the leadership of the Restoration Churches. What he records we can, therefore, regard as a helpful and accurate perspective on this important movement.

There can be no doubt that the Biblical call to full-blooded discipleship, relevant and satisfying worship, and mutual accountability in the local church has been heeded by the Restoration churches. Not surprisingly, their leadership has touched an extremely responsive chord in Christians looking for church life of a more challenging and rounded nature. The annual celebrations, such as

Dales Week and Downs Week, have made a major contribution to a more confident, if not exuberant, Christian witness in Britain today.

The book helpfully traces some of the more hidden and less acknowledged historical roots of Restorationism—in mainline Pentecostalism, the Christian Brethren and the Catholic Apostolics under Edward Irving. He eventually and inevitably poses the question as to whether the movement will ultimately—or even sooner—end up as a denomination. Because he writes as a sociologist, the distinctions he draws between church, sect and denomination may appear to degenerate into semantics. But his question is a crucial one.

Dr. Walker suggests strongly that the answer may well revolve around the willingness of the Restoration churches to become genuinely committed to evangelism. Recently, Bryn Jones has launched into front-line proclamation of the Gospel in Yorkshire: he is also mustering 'apostolic teams' to press ahead with such ministry. In a country so signally unevangelised this priority is so urgent for all Christians, that members both of denominational churches and of the house churches must surely be involved all together in preaching the Gospel. No doubt the mainline churches have an immense amount to learn from the Restorationists; but there can be little doubt that God requires *both* instruments to be functioning with equal precision and penetration, if his kingdom is to come in our nation. There can be no room for either 'dog-in-the-manger' or 'top-dog' attitudes in the midst of so secular a society.

D. PRIOR

Colin Brown, *Miracles and the Critical Mind*, Eerdmans/Paternoster, 1984. 383pp. Casebound. £14.20

Much of this book is devoted to a comprehensive historical survey of attitudes towards, and arguments for and against, miracles, with special reference to the miracles of Jesus recorded in the Gospels.

The main philosophical debates (as distinct from exegetical problems) have centred round such questions as: (a) could miracles, in principle, occur?, (b) did the Gospel miracles actually take place as recorded?, (c) are those miracles evidence of Christ's person, the truth of His word, or the activity of God; or is a belief in God that which makes the miracles credible?, and (d) what was the purpose of New Testament miracles?

As the book recounts the various answers that have been given to these questions, it becomes clear that those answers depend less on the evidence available than on the conceptual framework of the

authors discussed. It is clear from the Gospel accounts that the witnesses of the miracles were divided in their views, not on whether an amazing event had occurred, but whether the prodigy was attributable to God or to Satan. As time passed and personal witness was replaced by documentary evidence, the debate shifted to the possibility and actuality of the recorded events. The evidential value of miracles thus appears to be very limited: they do not logically compel a response of faith.

As to the 'mechanism' of miracles, believers are again divided. There are those who see miracles as contraventions of natural law (or, in theological terms, interventions of God into His normal working); and there are others who understand miracles as the unforeseen outworking of regularities, some possibly yet to be discovered. Believing scientists today would probably entertain both concepts, depending on the particular Biblical miracle.

Having completed his historical survey, Brown adds two further chapters, one dealing with the place of miracles in Christian apologetics today, and the other discussing the significance of Gospel miracles for New Testament interpretation. In the latter, which is particularly thought-provoking, he suggests that the miracles of Jesus are in the prophetic tradition, in which actions frequently symbolize the spoken message; and that they are pointers ('signs', not proofs) to the activity of the Trinity.

This is a very valuable work, not only as a reasoned argument, but also as a work of reference. It is bound to be a standard work for many years to come. There are hints in the Introduction that we might expect a sequel on the exegesis of the miracle stories. I shall look out for it with great interest.

GORDON E. BARNES

P. Davies, *Superforce: The Search for a Grand Unified Theory of Nature*, Heinemann, 1985. 255pp. £0.00

There are a good many books written in non-mathematical language about cosmology and modern physics, and they would be primarily aimed at the thoughtful, general public. Readers of a good number of such books would not be much wiser, even after a second or third reading. *Superforce* is not one of these. To the non-specialist, and even to the specialist, it opens up new horizons because of the way in which it explains and describes the new advances in cosmology, and some aspects of modern physics. It should be bought by all school

libraries and theological colleges. Clergy would be somewhat wiser if they read and digested it. Those embarking upon a degree course in physics would profit by it, and the layman interested in scientific speculation would find it most readable.

This book is not just about recent, and very recent, advances in the understanding of the physical world. Running through its pages is the view that there is purpose in human existence. Paul Davies seems to believe that even though basic scientific laws may be sufficient to explain an evolving universe, nevertheless there is a strong possibility that the laws themselves are due to design, and that therefore the universe must have purpose. The author claims that the evidence of modern physics suggests strongly that that purpose includes us.

The book discusses the four forces known in nature:- the gravitational, electromagnetic, strong nuclear and weak nuclear. These have been known to scientists for years, and it has been their dream that one over-riding theory or force could explain each of them. Einstein spent the last years of his life attempting to reach such a synthesis, but failed. As the title of this book suggests, the search for a Grand Unified Theory (G.U.T.) is still on, and the author believes it is now within our grasp. His chapters deal with (amongst other things), symmetry and beauty in nature, the quantum theory, the world of sub-atomic particles, quarks and superglue, and taming the infinite. Do we live in eleven dimensions? What caused the Big Bang? Is there a Cosmic Plan? The author, together with many other scientists, has obviously been inspired by the remarkable harmony, order, and unity of nature that the recent advances have uncovered. It is indeed most remarkable, the author would use the word miraculous, that laws which govern and describe forces can also be expressed in terms of obscure geometrical properties of multi-dimensional space. When it comes to understanding in depth, there is no disharmony between what seem completely unrelated phenomena: there is, in fact, a correspondence, a harmony, and a unity. For example, it is well-known that a system possessing spherical symmetry implies the law of conservation of angular momentum.

Superforce—The Search for a Grand Unified Theory of Nature is a most readable book on the subject. It is an exciting and a salutary book. It has a good index, and I can strongly recommend it.

B. W. COOK

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THE NATURE AND NURTURE OF MAN

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on

SATURDAY MAY 17, 1986

- 10.15 Coffee
- 10.45 SCIENCE AND SOCIETY: REFLECTIONS ON THE RADICAL
CRITIQUE OF SCIENCE
*Dr. David Livingstone, Department of Geography, Queen's University,
Belfast.*
- 11.45 GENES AND THE NATURE OF MAN
Dr. Caroline Berry, Consultant Clinical Geneticist, London.
- 12.45 Lunch
- 2.00 p.m. CURRENT THOUGHT IN PSYCHOLOGY AS IT CONCERNS
CHRISTIAN FAITH
Professor David Myers, Department of Psychology, Hope College, U.S.A.
- 3.00 p.m. Tea
- 3.30 p.m. Short papers, and general discussion

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