

## Book Reviews

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**Don Brandt (ed.)**

***God's Stewards: The Role of Christians in Creation Care.***

Monrovia, California: World Vision, 2002. 102 pp. pb. \$12.95. ISBN 1 887983 42 2

It was a delight to review this book edited by Don Brandt of World Vision. Small, with sound bindings, it has an attractive cover and clear type face. There is a Contents page and a brief, succinct biography of each contributor. The book has a Foreword by Eugene Peterson and in the carefully constructed Introduction we learn that *God's Stewards* was written by Christians for Christians. The five essays which follow each conclude with a brief list of relevant articles related to the issue discussed. There is no Index.

Ecology is the study of the relationship between living things and the environment. Each writer relates their message to the instructions given by God to humanity in the first chapter of Genesis. Humanity was appointed managers of God's creation, their world. Christianity may be anthropocentric but this group of Christian writers is theocentric. They show that what God had declared was 'very good' has been abused and despoiled.

In our Western cultures the waste of our lifestyles is 'spirited away'. The Rev Peter Harris, is an Anglican minister and a practising ecologist. He shares experiences gained with a Christian environmental organisation, viewing with deep concern the anti-environmental attitudes found in much of our Western culture. Christians should now be accepting a responsibility for these ecological issues.

Sam Berry, Professor of Genetics at University College, London for 22 years, in 'One Lord, One World: The evangelism of environmental care', sketches a hope

for the future. Berry, acknowledging that people were made in the image of God says that we should recognise that it is this fact, and not our DNA that makes us different from the rest of the creation. He states that the 'death' that entered the world with Adam was primarily separation from God and the Christian's hope is based in Christ, our Redeemer. This is an informative, critical appraisal of the current position by a scientist who advocates that Christians join forces with others to rescue our heritage.

Michael Northcott of the University of Edinburgh writes on 'Ecology and Christian ethics', expressing a passion that we should be actively involved in the preservation of our world. Anne Clifford relates Christian theology to the natural sciences. In this carefully argued paper this author tells of a sustainable *oikos*, the household of life and of God, affirming the intrinsic value of all creatures, (Jer. 9:10; NAB).

Donald Brandt, a staff member of World Vision, reflects on the implications of stealing creation's blessing. He challenges Christians because of their apparent indifference to the destruction of our biosphere, whereas many of the early church fathers had a cosmic understanding of salvation that was not focused on a pursuit of goods. These earlier church leaders considered the material world was fundamentally good. An informative 1994 document, 'An Evangelical Declaration on the care of Creation' is found in the Appendix.

Brand also enlightens us about the deep ecologists, an eclectic group of humanists, pantheists and some Christians. These Christians appear to give little credence to the redeeming role of Christ in the biosphere or the renewing work of the Holy Spirit, an attitude corrected by the writers, (Col. 1:20), who achieve their goal. Brandt also appraises

the concept of *Gaia* where everything in the biosphere is related, and appears to be an integral part of the panentheistic New Age religions. His closing remarks warrant study; 1. The Bible is a history of God's work, not of human achievement; 2. The primary task of humans is to glorify God; 3. Humans should be the stewards of God's creation.

This book should have a wide appeal and its message would then contribute to the informed conscience of Christians in ways that should then be expressed within their churches. This book will give pleasure to have and could be given to others without reservation. Humans should understand the pressing need to restrain their wants, resisting the dominant mores of a consumer society. As the writers note, there is a deep rationality of God, humans and the earth within the created order and we should recognise and respect the needs of our non-human neighbours.

**Ken Mickleson is a paediatrician with a BD.**

**Colin J. Humphreys**

***The Miracles of Exodus: A Scientist's Discovery of the Extraordinary Natural Causes of the Biblical Stories***

London: Continuum, 2003. 362 pp. hb. £16.99. ISBN 0-8264-6952-3

Colin Humphreys adopts a popular, non-technical style for this fascinating treatment of the phenomena that pepper the pages of the Exodus story. His basic thesis is that, when the routes of the Exodus and the wilderness journeys are correctly identified, science can 'explain every miracle in the Exodus story'. His aim, however, is not to explain away, but to suggest that 'there is a God who works in, with and through natural events to guide the affairs and the destinies of individuals and of nations' (340).

Much of the argument hangs on unorthodox identifications. Humphreys

argues that Mt Sinai was not the traditional mountain but a volcano, Mt Bedr in NW Arabia. The Israelites did not cross the sea somewhere north of the Gulf of Suez, but at the head of the Gulf of Aqabah. How plausible is this major re-routing of the Israelites' journey?

His identification of Mt Sinai with Mt Bedr is well argued. Others have made the case before, notably the archaeologist and biblical scholar W. J. Phythian-Adams (*The Call of Israel*, London: OUP, 1934), but Humphreys strengthens it a good deal. If Mt Sinai was an active volcano, several phenomena described in Exodus 19:16-18 find a natural explanation.

I have doubts, however, about Humphreys' location of the Red Sea event. He understands Exodus 13:20 ('They set out from Succoth and camped at Etham, on the edge of the wilderness') to encapsulate a journey of over 180 miles to the head of the Gulf of Aqabah. He musters some ingenious arguments for this, but the text gives a strong impression that Etham was quite close to Egypt. The same can be said of Shur (Exodus 15:22), which Humphreys also has to place near the head of the Gulf of Aqabah (but cf. 1 Samuel 15:7 & 27:8 etc.). His route is in fact similar to that proposed by H. Gressmann in 1913, to which Phythian-Adams raised some telling objections (*The Call of Israel*, 168).

Locating the Red Sea event at the head of the Gulf of Aqabah is crucial to Humphreys' explanation, namely the phenomenon of wind setdown. The 'east wind' of Exodus 14:21 could not have produced wind setdown in the Gulf of Suez, whereas a strong (north)east wind blowing into the Gulf of Aqabah offers the ideal scenario. Again the argument is ingenious, but it fails if the route is not accepted. In my view Humphreys is too hasty in dismissing other explanations which would not demand the Gulf of Aqabah as their setting.

But if, for the sake of argument, we accept Humphreys' revised route, what should we make in principle of his bold claim that 'modern science' can 'explain every miracle in the Exodus story' (339)? Scientific explanations work well in some cases (e.g. the plagues of Egypt, the stopping of the Jordan), but not in others. The burning bush is an example of the latter. Humphreys suggests the bush was growing over a source of natural gas or a volcanic vent (both equally plausible, given his location for Mt Sinai/Horeb), and that it was the escaping gas that was burning, not the bush. The bush would, of course, have caught fire, but Humphreys argues that it was probably a species of acacia that could have become a 'charred and glowing charcoal framework' without turning to ash (p. 78). I find it hard to believe that this is what Exodus 3:2 means by telling us the bush 'was not consumed'. In any case it is beyond science to explain how God spoke to Moses out of the bush.

There are also problems with his explanation of the pillar of cloud/fire. According to Humphreys, 'the book of Exodus does not imply that the pillars of cloud and of fire were just in front of the Israelites, and neither does it state that they were moving pillars; they could have been a considerable distance ahead and fixed...' (165). This allows him to suggest (like others before him) that the fire and cloud were the output of an erupting Mt Bedr. This, however, overlooks passages such as Exodus 33:9-10 and Numbers 9:15-23, in which the pillar is next to the Israelite camp and does indeed move. Humphreys should recognise that biblical language is often metaphorical rather than literal.

Humphreys' treatment of the date of the Exodus also calls for brief comment. He points out that scholars have found conflicting clues in 1 Kings 6:1 (pointing to the fifteenth century BC) and Exodus 1:11 (favouring the thirteenth century BC), and he superficially resolves these in favour of the latter. However, he makes

no mention of the weaknesses of this date, chief of which is that a thirteenth-century conquest of Canaan has become increasingly implausible in recent decades (see my article 'The origins of Israel in Canaan: an examination of recent theories', *Themelios* 15/1, 1989, pp. 4-15, online at [http://www.biblicalstudies.org.uk/article\\_canaan\\_bimson.html](http://www.biblicalstudies.org.uk/article_canaan_bimson.html)).

In the light of Humphreys' willingness to challenge orthodoxy in other areas, it is disappointing that a possible revision of Egyptian chronology is never seriously considered. David Rohl's proposal to remove 350 years from Egyptian history is mentioned in the bibliography but dismissed because of 'the mass of interlocking evidence supporting the conventional chronology' (342). However, in recent years a number of other scholars have been unpicking that mass of interlocking evidence, proposing revisions of 50, 75 and even 250 years (see my *(When) Did it Happen? New Contexts for Old Testament History*, Cambridge: Grove Books, 2003). There are certainly problems with Rohl's scheme, but the conventional chronology is not as secure as Humphreys thinks. I suspect that a full solution to the historical, political and geographical setting of the Exodus events lies in an exploration of such radical possibilities.

These criticisms notwithstanding, I recommend Humphreys' book as a lively read that should stimulate debate for a long time to come.

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**Alister McGrath**

***The Re-enchantment of Nature:  
science, religion and the human sense  
of wonder***

London, Hodder & Stoughton, 2002.  
214pp. pb. £12.99. ISBN 0-340-86146-0

At its simplest this book is concerned to rebut the damaging but widely believed assertion made by Lynn White in a famous paper written in 1967 arguing that Christianity has offered a theological justification for exploiting the environment and is therefore responsible for the emerging ecological crisis. Positively, this book is concerned to show that Christianity has a view of nature that respects its wonders, patterns and intricacies and is thus consonant with scientific exploration. Indeed the beauty of nature and the beauty of science answer each other in no coincidental way. And, third, McGrath is concerned to show that the exploitation of nature by science is a project that stems fundamentally from the rationalism of the Enlightenment and from atheistic science, as most drastically exemplified by Stalinism. In short, the culprit for environmental damage is to be found within those forces that *oppose* Christianity.

McGrath writes for two audiences: one that is Christian and needs to appreciate the breadth and centuries-long depth of the church's theological engagement with environmental issues, and the other which is not Christian, and not expected to become Christian, but needs to hear an altogether more accurate analysis than the largely unquestioned one given by White.

The chapters follow a broadly historical path that shows how the scientific method was at first based upon direct observational techniques and the Baconian process of induction. Discussion of the scientific method remains as a theme until the end when McGrath considers the work of Richard Dawkins who is unceremoniously associated with quackery. McGrath's own scientific training

leads him to reject the 'naive falsificationism' of some of Popper's followers. He defends an altogether more open-ended form of science where a variety of models may be supported by evidence of one kind or another and where scientific laws are provisional generalisations rather than absolute and unbreakable edicts. If science followed the straight-line path demanded of those who have absolutised its methods, then the wave and particle theories of light could not have coexisted. It is his failure to appreciate the ambiguities within science that makes the pronouncements of Dawkins seem so uncannily like the fundamentalist propositions he berates.

Alongside the consideration of method, is one of the effects of a mechanical model of the universe. This is one of the best parts of the text. We are shown how a gradual shift takes place. For Galileo the universe, or nature, is a great book that may be understood by the language of mathematics (108) and which speaks of its divine creator. And then, after Newton, nature becomes a gigantic clockwork machine that is running dispassionately into a silent future when, eventually, the machinery will run down as entropy takes its baleful effect. This mechanical universe has little beauty and no surprises. Yet in Dawkins, particularly in his attack on Keats, there is a failure to understand that the Romantic movement understood nature as allowing glimpses of the transcendent. Keats, for all his poetry, was after all training to be a doctor. So for McGrath, we need to get back to the youthful sense of wonder in the natural world not only because this is an appropriate response to God's creation but because this is the response that is most likely to protect nature from grotesque misappropriation.

This is a fine book. Dawkins receives a drubbing at the end but, in the light of the perpetuation of White's inadequate and misleading analysis, rightly so. If error is repeated often enough, and repeated by those who are heard by the

young, a generation may pass before corrections can be made. By then, the error has hardened into prejudice. The central themes of the book, however, are not polemical and show McGrath at his best as he deals with a huge range of material drawn from the byways of theological and scientific history.

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**John Polkinghorne**

*Living with Hope: a Scientist looks at Advent, Christmas and Epiphany*

London: SPCK, 2003. 99p, pb, £8.99.  
ISBN 0-281-05597-1

Scientists who are Christians need spiritual as well as intellectual nourishment. This book is a devotional aid which provides both. It is a set of devotional readings covering the period from the beginning of Advent to Epiphany. The book is designed to be used in any calendar year.

The Advent section of the book takes the Four Last Things as its weekly themes: death, judgement, heaven and hell. The 'twelve days of Christmas' centre on themes connected with the story of the birth of Jesus and the mystery of the incarnation. The book ends with the celebrations of Epiphany (the manifestation of Jesus to the Gentiles) and the baptism of Jesus.

I found this a very helpful devotional aid at a time when otherwise one tends to reread well-known passages of the Bible and struggle to find something fresh in them. The thematic approach of *Living with Hope* is fresh and stimulating. Sometimes there are insights that arise specifically from his scientific background. Occasionally I found myself disagreeing with him, but that was part of the stimulation to think more deeply

about the traditional doctrines of the Advent season.

Polkinghorne writes well and clearly and with devotional warmth. This is a book to be recommended if you want to try something fresh in your personal devotions next Advent. It could also be used as a basis for some group study and discussion during the Advent to Epiphany period.

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**Michael Palmer**

*The Question of God*

London: Routledge, 2001. 357 pp. pb.  
£17.99. ISBN 0-415-22387-3

It has been fashionable in some circles to contrast religion and science by demonstrating the irrational nature of the former and advocating the rationality of the latter. Such a contrast is not only an oversimplification, but is very misleading. Although religion claims to be based on revelation, it is not thereby considered to be devoid of knowledge, as some atheist scientists, like Peter Atkins, have suggested. In fact there is a long and respectable history of philosophical reasoning emanating from the Greeks which has sought to establish not only the reasonableness of religion, but also to show that God's existence can be proved. Philosophy of religion has become a popular approach to the teaching of religion in schools and colleges in recent years and many books have been written to serve this new market.

There are many anthologies of classical texts relating to the philosophy of religion and the arguments for and against the existence of God. The problem is that many of these texts are inaccessible to pupils and also to teachers who have not studied philosophy. The great virtue of this book, which has been used extensively since it was first pub-

lished, is that the author not only reproduces extracts from both ancient and modern philosophers, but also gives us a valuable commentary and critical assessment of these. Michael Palmer is well qualified to do this having taught religion and philosophy in schools and in university departments, and he has written a number of specialist works on both philosophy and psychology.

The book is concerned with a critical analysis of the arguments for and against the existence of God. It is not, as the author points out, a compendium of all the arguments, but rather a concentrated study of the five most important arguments, namely the ontological, cosmological, teleological, moral and pragmatic. He also includes a chapter on miracles and whether they can themselves provide a proof for the existence of God. The book is well written and eminently readable, and contains numerous extracts not only from classical authors like Plato, Anselm, Descartes, Hume, Kant and Paley, but also from a diverse group of modern authors. Palmer gives potted biographies of the philosophers under discussion and sets the debate in its historical context. He is even-handed in his treatment of the arguments and leaves the readers to come to their own conclusion in the light of the arguments presented. The author assumes no previous knowledge of philosophy and explains all technical terms as they appear. As the book is primarily intended as a source textbook for schools and colleges it contains a series of questions and exercises as well as useful summaries and thumbnail sketches of the various authors whose work is being discussed. Also, each chapter ends with an extensive bibliography for those who wish to pursue the subject further.

Readers of this journal will particularly enjoy the excellent summary and critique of Darwin as well as the author's interaction with Richard Dawkins. His chapter on miracles is also clearly relevant to the science and religion debate,

as is his discussion of the anthropic teleological argument with a corrective for those of us who have perhaps been too keen to use the 'fine tuning' argument as a final 'scientific' proof for God's existence. There are also some forty black-and-white illustrations, mostly of the authors whose work is discussed and of various relevant letters publications. The book has already received a number of rave reviews, being described as 'an excellent study', 'a fantastic book' and, by the atheist philosopher Anthony Flew, as a 'model of the way in which an introductory book ought to be constructed'. The author's intention was to write a text specifically for those starting philosophy of religion at school or college as well as for the general reader, and it is an objective that he has fulfilled admirably. It is a book that I would highly recommend to all Christians who are anxious to be able to make a reasoned defence of their faith.

**Reg Luhman has recently retired from being the Head of Religious Studies at an Essex Grammar School, and is currently engaged in various writing projects.**

### **Ian G. Barbour**

#### ***Nature, Human Nature, and God***

Minneapolis, MN: Fortress Press, 2002.  
170 pp. pb. \$15.00. ISBN 0 8006 3477 2

I enjoyed reviewing this book. Ian Barbour, a Dean of religion and science, directs his expertise to issues in science and theology that are of interest to readers of this journal. You may consider buying the book, then giving it to a friend or placing a copy in the church library.

The book is attractively presented. The superior typeface ensures easy reading. A Contents page is comprehensive. In the Introduction the author briefly sketches his current views on science and religion.

The Preface outlines the five challenges of science to religious beliefs, which Barbour subsequently examines in

detail. These are: the accepted beliefs in a personal God; the genome; the contribution of the neurosciences to our understanding of intelligence; an explanation of process philosophy; and the role of God in nature. The absence of footnotes makes for pleasurable reading and is compensated for by extensive notes and references for each chapter, then Acknowledgments and an Index of authors and subjects.

Barbour provides a comprehensive, current and thoughtful discussion of each topic considered. In chapter 1, 'God and evolution', the author explains the influence of neo-Darwinism on scientific postulates. There is a very good explanation of process theology that is clear and thorough, providing a preface to a philosophy linking biological subjects and Christianity. The author's telling arguments on many issues invite the reader to consider his alternate explanation.

The next chapter on 'Evolution, genetics and human nature' provides a factual account of the genome. The author discusses hominid evolution and sociobiology, commenting on subjects such as morality and sin, and the influence of our genome on the concept of humans' freedom of choices. Barbour's skills show in the shaping of a meaningful construct for reflection on many related topics, including the dilemma accompanying stem cell research. Guidelines regarding germ line therapy and eugenics are discussed, including a Christian response to these problems. There are many other subjects examined here where Barbour extends our understanding of related issues. He presents and defends his *developmental view* of fetal growth with the gradually emerging personhood, eventually culminating in a many-levelled unity at maturity.

In the following chapter Barbour explains why, by abandoning the body/soul dualism of Greek philosophy there is then an openness in advocating a holistic view of persons. God breathed into humans *nephesh*, a life principle but

where there is no implication of immortality. Resurrection of the total person is scriptural. The author then considers the embodied self in process philosophy. This explanatory account of our emotions, brain function and neural activity alone is inadequate to explain the mind. Human activities must be understood in their fully integrated, embodied existence. Barbour does not avoid contentious matters, so there are helpful comments on artificial intelligence and reductionism analysis as postulated by Crick. He also discusses neural and mental events and why consciousness depends on an organised system, concluding this section with his belief that process philosophy brings all these concepts together. His postulates are supportive of the biblical view that a human is a multilevel unity and a responsible being. His erudite approach to these ideas makes a major contribution throughout the book.

In the final chapter the author applies theology and ethics to environmental matters. The present crisis he sees as a call for a critical evaluation of human despoilment of God's beautiful world. Animals also have rights. The churches, cooperating ecumenically, are in a position to challenge short-term economic criteria influencing political policies. The Creator appointed humans to a position of stewardship of the environment and therefore care and responsibility for it cannot be ignored by them. Barbour assesses these matters, including some of the adverse effects of globalisation in a society of compulsive consumerism.

I recommend this book without reservation. Barbour has excelled in his task of communicating ideas in every sense of the word. Moreover, the subject matter is discussed in the context of the God who made all things, and the Redeemer who will restore the world in a way we cannot even conceive of.

**K. N. P. Mickleson, a retired paediatrician, has a theological degree and is interested in medical research.**

**R. J. Berry**

***God's Book of Works: The Nature and Theology of Nature***

London: Continuum, 2003. 286pp. pb.  
£17.99, \$29.95. ISBN 0-567-08915-0

Professor R. J. Berry is Professor Emeritus of Genetics at University College, London. A frequent and welcome contributor to the science – faith dialogue, he is one of the most well respected scientists and churchmen of modern day Britain. It was his privilege to give the 1997-98 Gifford lectures at the University of Glasgow. *God's Book of Works* is the compendium of these lectures.

The title expresses Professor Berry's intention 'to link God ... with the living world of genetic variety' (xiv). Professor Berry does not concern himself as much with traditional natural theology as he does with the theology of nature. He is to be commended for the clear distinctions he draws between the two fields of study. However, Berry neither ignores nor belittles natural theology, believing that 'both natural theology and a theology of nature converge as we get closer to their determinants – in other words, the creator' (xiii).

*God's Book of Works* is divided into four sections. The first three chapters review the science-faith debate in its historic and scientific context. Chapter Four reviews the nature of life. Chapters Five to Nine detail Berry's most original work to date in this field and a subject obviously close to his heart – the Christian and the environment. The last three chapters are a synthesis of his arguments and a primer for reading both *God's Book of Works* and his *Book of Words*.

I would like to comment on three of Professor Berry's prominent emphases in *God's Book of Works*:

1. *His robust defence of complementarity*. The idea of the 'complementarity' of religious and scientific descriptions is associated with Donald MacKay. Comple-

mentarity, I would argue, does not neatly fit into any of Iain Barbour's four categories of science – faith debate. Rather it provides a bridge between various non-conflict models. It would be a mistake just to label complementarity as purely linguistic – it seeks to describe the same reality (as opposed to independence models). Neither can it be reduced merely to the difference between the 'why' and 'how' questions. Professor Berry provides a lifetime of mature reflection on complementarity. His exposition of MacKay provides valuable insights both into the nature of God himself, and into the nature of God's activity in the universe. I would particularly recommend Professor Berry's emphasis on the latter – God's providence in action. Berry's reflections are both eminently biblical and sensible. He says, for example, 'to dispute ... as some of our forebears did, whether something "came about by natural causes or required an act of God" is simply not to take seriously the depth and range of the doctrine the Bible asks us to consider' (32). This insight is vital to any honest and successful Christian apologetic.

2. *His innovative view of the environment*. It is perhaps as a 'Christian environmentalist' that Professor Berry is best known. Whereas in other lectures, Berry quotes others as primary authorities, in his lectures on Green Issues he uses the insights of other authors but is clearly both most at home and at the cutting edge of modern thought. Professor Berry is no mere talker or theorist, but applies his theology of nature in this most sensitive of areas. It was he who framed the aphorism, 'we are both part of nature and apart from nature' (165). Such a statement keenly grasps both the biblical teaching of origins and our modern environmental predicament. He is willing to interact with all – for example Lynn White's trenchant criticisms of Christianity and Sally McFague's eco-feminism – whilst being able to communicate his syntheses in simple and uncomplicated language. At no point does he advocate alternative theological positions

such as process, pantheism or panentheism to solve the world's eco-problems. He insists rather that 'a better way forward is to return to the lost attitudes of the wisdom tradition.' Berry is innovatively orthodox rather than predictably unorthodox.

3. *His orthodox presentation of Christology* – Berry posits that 'only when we are bold and brave enough to face up to the real world and to God's word, written and made flesh, will we begin to have a truly robust doctrine of creation' (248, italics mine). The picture of God we have in the Scriptures is the key to understanding the world – a picture which is completed by the knowledge of Jesus as the Son of God. Berry correctly moves from a 'creationist' position of *Ego sum Deus igitur est* to the biblical assumption *Deus est ego igitur sum*. Although Berry does not say as such explicitly, he surely implies that a full understanding of the theology of nature is only acquired when *Christus est ego igitur sum*. It seems to me that in saying as much, Berry manages to avoid Barthian abstraction whilst maintaining Christological centrality.

Professor Berry is a gifted author and speaker. His devotion to Christ is evident both from the respect with which he treats Christ's Book of Works, and the love with which he interprets Christ's Book of Words. Reading Berry's book will both educate and edify any who open its pages. Many of his distinct emphases are crying out for further development, promising a fascinating future for the science – faith dialogue. I recommend *God's Book of Works* unreservedly.

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**John. M. Lynch (Ed),**  
*Creationism and Scriptural Geology, 1817–1857.*

Bristol: Thoemmes Press, 2002, 7 volumes, xxiv + 2994pp, hbk. £595. ISBN 1 85506 928 8.

I cannot imagine any reader buying these important volumes, which is a great pity. They are part of a series published by Thoemmes Press on *Evolution and Anti-evolution: the debates before and after Darwin*.

During the first six decades of the nineteenth century Christians, mostly evangelicals, published innumerable books and tracts on the theme of Genesis and geology. Some of these writers were hostile to geology but others were supportive of geology or even themselves great geologists, notably William Buckland. Out of a vast field, Lynch chose eight: five hostile to geology and three supportive. Thomas Chalmers, John Pye Smith and Hugh Miller did not regard geology as infidel. The hostile five were John Mellor Brown an Anglican clergyman, Granville Penn, grandson of the founder of Pennsylvania and an Anglican layman, George Young, a Congregational minister and two laymen George Fairholme and John Murray. Only two had good field skills in geology, Hugh Miller and George Young who did some fine work around Whitby in the 1820s. Smith was the leading Congregationalist theologian of his generation and his book shows a first-rate understanding of the geology of his day. He wrote as if he used a geological hammer! In his doctoral thesis (partially reproduced in [http://www.answersingenesis.org/home/area/bios/T\\_Mortenson.asp](http://www.answersingenesis.org/home/area/bios/T_Mortenson.asp)), Mortenson tried unsuccessfully to demonstrate Murray and Fairholme's geological competence. The only weakness of Lynch's selection is the absence of the Anglican clerical-geologists, Buckland, Sedgwick, Conybeare and Henslow. John Lynch would have re-inforced the argument of his essay if he had edited some of his chosen works and used Buckland's *Vindiciae Geologi-*

cae (Oxford, 1820) as a replacement. This would demonstrate Buckland's 'creationist and scriptural' perspective.

By his choices, Lynch has undermined the polarised historiography which usually surrounds 'Genesis and Geology' of this era. All eight writers can be rightly described as Creationists and Scriptural Geologists. Consider Thomas Chalmers. He became the leader of the Evangelicals of the Church of Scotland. He cannot be termed a Moderate Evangelical as Boyd Hilton termed his pro-geology Anglican counterparts (*The Age of Atonement*, Oxford, 1988). Though no geologist, he was adamant that geology did not contradict the Bible. This he did famously with his 'Gap Theory', wherein he modified the widely accepted Chaos-Restitution interpretation of the eighteenth century. The choice of Chalmers, Smith and Miller is useful as the three works indicate the change in biblical interpretation over fifty years from Chalmers's Gap Theory to Miller's poetic vision.

Of the 'anti-geologists' Mellor Brown gives little more than a rant against Buckland; Fairholme, Murray and Young claim that geological 'facts' point to a young earth. The choice of Penn is inspired as Penn argues that all theologians who 'interpret' Genesis to allow high antiquity, do so because they are seduced by 'Mineral Geology'. That could be possible for Buckland or Chalmers in the 1820s but not Bishop Patrick, writing in 1694. Penn is useful for his theological discussion, including his suggestion that four verses of Genesis 2 (vv.11–14) were later additions. Small wonder Miller berated Penn for his lack of respect for Holy Writ. Penn's work gives a good insight into how geology was argued against on theological grounds.

The selection needs to be considered *in toto* as dipping into the volumes may not give the overall picture. Overall they give a good snapshot of 'Scriptural geology'. There were no sharp boundaries among Christians writing on geology, as there was every possible transitional fossil

between Brown and Buckland!

Gone is the sharp polarised historiography of Andrew White, which still persists, with the assumption that if someone was in any sense 'scriptural' then he had to be opposed to geology. Thus White typecast Buckland as opposed to Anglican orthodoxy. Yet as Rupke (*The Great Chain of History*, Oxford, 1983) pointed out such evangelical clergy as Sumner, Faber and Bishop Shute Barrington supported Buckland. Even so, White's simplicities are re-iterated by Deborah Cadbury (*The Dinosaur Hunters*, London, 2000) and Simon Winchester (*The Map that changed the World*, London, 2001).

This polarisation is still apparent in Gillispie's *Genesis and Geology*, where he wrote that Fairholme and Pye Smith 'set forth sillier ... systems of nature reconciling the Mosaic record with misconceived scientific fact.' (C.C. Gillispie, New York, 1951, p163). There is no 'misconceived scientific fact' in Pye Smith. Cannon (*Science in Culture*, New York, 1978) developed this polarisation with her argument of a broad church network of Anglican clerical geologists, with the implication that to accept geology a cleric must take a liberal view of the Bible. However, Sedgwick's overt Evangelicalism and Buckland's theological advisers undermine her conclusions.

Ironically this polarised historiography has resurfaced in Mortenson's study of Scriptural Geologists, but with the roles of 'goodies' and 'baddies' reversed! In a lecture to the Evangelical Theological Society in 2001, Mortenson (<http://www.zondervanchurchsource.com/convention/parallel.htm#DB>) stresses the theological compromises of Chalmers, Pye Smith and Miller, who had succumbed to the infidel Enlightenment. Mortenson's contrast of his 'goodies' (Fairholme, Young and Penn) and his 'baddies' (Chalmers, Pye Smith and Miller) is extremely significant as Lynch chose all six as representatives of Creationism and Scriptural Geology.

Lynch's fine introduction ([http://www.thoemmes.com/science/creationism\\_intro.htm](http://www.thoemmes.com/science/creationism_intro.htm)) continues the rejection of work of Rupke, Marston and Rudwick in the 1980s. He has challenged any polarised historiography by implicitly classifying any conservative writer on geology as a Creationist and a Scriptural Geologist. He is correct to do so, but we await a detailed study of these writers. Space did not allow Lynch to discuss the evangelical geologists like Sedgwick, Lewis, Fleming, Townshend, possibly Buckland and Conybeare, or Hitchcock and Silliman in America. There seems to have been less correlation of evangelical fervour and anti-geology from 1817 to 1857 than there is today.

These books repay close study, but fortunately Miller's *Testimony of the Rocks* is available as a cheap reprint (reviewed in *S&CB* 15.2).

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**T. A. Shannon & J. J. Walter**  
*The New Genetic Medicine*

Oxford: Rowman & Littlefield, 2003, 183 pp, pb, £14.95. ISBN 0-7425-3171-6

This book consists of a series of essays that have appeared over the past few years by two leading American Roman Catholic bioethicists. While this format has the disadvantage of some overlap between the essays and no attempt has been made to bring all of them completely up to date, they succeed in providing a fascinating and exceedingly important glimpse into aspects of the Roman Catholic moral tradition. The conclusions the authors reach on the status of the blastocyst (early embryo), stem cell research, cloning, and germ line gene therapy will come as a major (perhaps startling) surprise to many accustomed to reading the writings of conservative Protestant bioethicists. However, the

value of this book lies not so much in its conclusions, as in the calibre of the theological debate.

Shannon and Walter have at their disposal a very large body of literature, including that of Protestant theologians like Ted Peters and Ronald Cole-Turner, while they are extremely well versed in the relevant science. They pay considerable attention to all aspects of the topics under discussion, from the human genome, to the moral status of the pre-implantation embryo. The dominant impression left with the reader is of a serious and honest attempt to grapple with all the data available, from the science to the theology. Moreover, they are prepared to adopt what are undoubtedly unpalatable viewpoints within their theological constituency.

The writings are exemplary for their willingness to wrestle with new scientific findings and directions, and with the possible implications of these for traditional formulae, including magisterial teachings of the Roman Catholic Church. While the authors are deeply imbued with these teachings, they demonstrate a healthy willingness to question them, and overturn them when necessary.

Using various avenues the authors arrive at the conclusion that an individual is not present until about two to three weeks after the beginning of fertilisation. Prior to this the embryo is regarded as having value, based on the possession of the human genetic code and genetic uniqueness (they describe this as a pre-moral value). Nevertheless, they are resolute that it cannot claim absolute protection based on claims to personhood grounded in ontological individuality. Interestingly, they call on the writings of the medieval philosopher, Duns Scotus, to argue that one cannot claim the moral relevance of individuality until after the process of restriction has occurred. Prior to that it is more appropriate to refer to its 'common nature', when its genetic status is associated with what is common to all, not what is unique to a person.

This is no theoretical discussion since, in the light of these underlying concepts, the authors are prepared to sketch in some detail what they consider may or may not be allowable regarding embryo research, embryonic stem cell research and therapy, and therapeutic cloning. Throughout they attempt to ground their conclusions in their underlying theological vistas, as they attempt to attain coherence between moral theology and modern embryology. Neither do they ignore the broader social and resource issues surrounding expensive high technology medicine. In this their approach is coloured by the dimensions of the health care system in the United States.

There are also helpful discussions on theological themes, such as humans as stewards of creation and as created co-creators, models of God as creator, and the significance of the incarnation and redemption for genetics. It is good to be given a feel for the diversity of theological interpretations since these have a major bearing on how we view fundamental biomedical questions within a Christian framework.

Anyone interested in theological perspectives on issues at the beginning of human life will benefit enormously by grappling with the discussions in this book. One does not have to arrive at the authors' conclusion that individual human life commences at two weeks or so, but it is essential that their arguments be taken seriously. This book is highly recommended as a theologically informed, and wonderfully provocative, read. It is dialogue at its best, since it makes you critique your own thinking alongside theirs. But those who want simple resolutions and politically correct stances had better steer clear of it.

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**Eric Middleton**  
***The New Flatlanders***

Godalming: Highland Books, 2002. 175 pp. pb. £6.99. ISBN 1-897913-65-6

In the nineteenth century E.A. Abbott wrote *Flatland: a romance of many dimensions* which explored the idea of introducing two dimensional beings to the notion of a third dimension. This approach is developed in *The New Flatlanders*, which uses the concept of additional dimensions to provide an analogy for the existence of a spiritual realm in addition to the physical realm.

The book is written in the style of a conversation, as a series of sessions between the author and several students, who raise questions about science and its relationship to religious beliefs, which are answered by the author. This permits him to present his views in a very accessible way (he is a retired science teacher who was head of a comprehensive school and a sixth form college).

Before Flatland is introduced the book has short chapters dealing with cosmology and the origin of the universe, quantum theory and its implications, 'Quarks, superstrings and M-branes', and reality (including Plato's metaphor of the cave). Subsequently it deals with the anthropic principle, evolution, consciousness, miracles, the diversity of religions, chaos theory and evil. It concludes with a personal account of how the author has found the Christian faith answers a wide range of intellectual and individual questions.

Inevitably the brief treatment of the various themes addressed has to be simplified, but the author largely avoids the danger of over-simplification, and covers the wide range of scientific and theological ideas effectively. He gives numerous relevant references, and his science is quite up to date. Theologically he adopts an orthodox Christian position, taking the biblical revelation very seriously, but insisting that literalistic interpretations are often quite inappropriate. He sees no difficulty in accepting both conventional

science and conventional faith, while recognising that in both science and theology there are many questions that remain unanswered.

There are points on which some will disagree with the author, but he is remarkably successful in developing his theme that there is more to life than science can reveal, while science can give hints of matters beyond itself. Some may consider the presentation to be slightly contrived, but the book would be very suitable for giving to a thoughtful person who is seriously concerned about the relationship between science and personal faith.

**John Bausor is Publications Secretary of Christians in Science and is a retired science educationist.**

### **Ted Peters**

#### ***Science, Theology and Ethics***

Aldershot: Ashgate, 2003. 346pp. pb.  
£17.99. ISBN 0-7546-0825-5

With a title that covers almost everything, and no subtitle to narrow it down, anyone pulling this off the bookshelf must ask him or herself, am I in for a treat, or an unfocused ramble? Let us see.

Ted Peters is a Professor of Systematic Theology at Pacific Lutheran Theological Seminary, Berkeley California, and Director of the Science and Religion Course program at the Center for Theology and the Natural Sciences. Consequently he has spent the last few decades engaged in many cutting edge debates and has written plenty to record his thoughts. This book is based on a collection of those writings. As such it draws on a rich experience of dialogue and thinking, spread over a considerable period of time. This is a strength, but introduces two critical problems. First, many chapters are based on articles written in the 1980s and 1990s, which for a book aiming to inform current debate means that

while some revision has occurred, the arguments at times seem dated. A chapter on cloning, for example, comments on views held by others as if they are current, even though these were initial comments made when cloning first leapt into public consciousness in the mid 90s, and have been significantly modified since.

The second problem stems from the fact that the publications underpinning this book were written for different publications and audiences. Consequently the style of writing and target readership varies. The two opening chapters, which concentrate on theological and philosophical principles underpinning the debate between science and religion, are heavy going and frequently sent me searching for a dictionary. I had the impression that they were written for people well versed in the concepts and surrounding jargon. Chapters on the ethical issues involved in making babies are readily accessible to someone who has never considered the problems, but raise few points that would be new to people deeply involved in ethical debates.

That said, the book has highlights. It opens with a passionate plea that science and religion not only can but must work together if we are going to gain a full understanding of our universe, ourselves, and our God. This, Peters argues, is not because we need two 'languages' of debate, science and religion, but people who really want to know need to embrace both systems of learning. He feels that the two-language approach 'gains peace through separation by establishing a demilitarised zone that prevents communication' (19), and would prefer to strive towards Ernst McMullin's concept of consonance – a task of looking for areas of overlap between the scientists understanding of nature and the theologians understanding of God.

Realising that this coexistence is absent from most debates he introduces the idea of hypothetical consonance which 'asks theologians to view their discipline somewhat differently. Rather

than beginning from a rigid position of inviolable truth, the term 'hypothetical' asks theologians to subject their own assertions to further investigation and possible confirmation or disconfirmation. An openness to learning something new on the part of theologians and scientists alike is essential for hypothetical consonance to move us forward'(19). I'm sure that if the book had been written from scratch we would have seen a more overt demonstration of the way that this hypothetical consonance works in practice, but you can glean some contribution of this principal all the same.

A chapter on extra-terrestrial life does a good job of establishing the reasons why Christian thinkers need to develop a positive response to the possibility of discovering fellow life forms on other planets. A chapter entitled the 'Terror of Time' makes a valuable contribution, showing how this concept, that so rules the lives of contemporary western people, was not such a tyrant to our predecessors, nor is it to people currently living in other cultures. He calls us to live in the 'coming future' rather than the 'ephemeral present' that is gone before we know it. 'If there is to be salvation,' he claims, 'it will have to come to us from the future... we will have to be greeted by a future wholeness rather than deterioration, of fulfilment rather than dissolution, of life rather than death.' (63)

I'm afraid though that I found the book a little disappointing. Its all encompassing aim was certainly lived out in the span of chapters that include nuclear waste, the human body and on-going evolution, but I longed to see a common theme or unifying purpose that would draw a thread through the book. As such, it makes a better reference book than a cover-to-cover read.

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**Noreen L. Herzfeld**  
***In Our Image: Artificial Intelligence and the Human Spirit***

Minneapolis: Fortress Press, 2002.  
135pp. pb. £8.71 ISBN 0-8006-3476-4

*In Our Image* examines the possibilities and consequences of Artificial Intelligence (AI) on humanity from a Christian perspective. It claims to be the first extensive theological engagement in this field, and, given the work's originality and brilliance, this claim is certainly justified. The book is quite accessible and any believer with an interest in (or fear of) AI will find this book thought provoking.

One of Herzfeld's central claims is that research into AI is nothing less than an attempt to create intelligent machines that 'image' ourselves as humans. Indeed, she offers explicit claims from researchers that support her position. She states that, 'If through artificial intelligence, we are looking for a true and viable image of ourselves, this image might well reflect what we perceive to be God's image in us' (32).

This question lies at the heart of the book and in this vein Herzfeld outlines the biblical basis for the doctrine of the *imago Dei* and three of its main theories: the substantive approach of R. Niebuhr; the functional theory of Gerhard von Rad; and the one she favours, the relational model of Karl Barth. This theory is essentially non-substantive; 'We are in the image of God when we are in authentic relationship with God or one another' (29). The *imago Dei* is therefore not something we possess but something to be experienced. Of course, there may be those who do not relate to others in this way, but they do *potentially*.

The book explores the hopes and fears we might harbour when considering the future of AI; Herzfeld does this through a discussion of AI in cinema. Hal from *2001: A Space Odyssey* represents our fears when things go wrong. At the other end of the spectrum are C3PO and R2D2 from *Star Wars*, who exemplify robots

that can be companions to us and to each other. Hal exemplifies 'reason', what Herzfeld terms the *imago hominis*, the robots the relational model.

Herzfeld questions why it is that we would want to create AI in the first place, and offers some very intriguing possible answers. One reason might be to do with our own sense of mortality, the threat of non-being. If all we are is a web of neural patterns, might not that information be downloaded onto a machine thereby at least offering us cybernetic immortality? This, Herzfeld shows, is exactly what some researchers have in mind, people whose discourse takes on a rather religious tone when eulogising the future, when we will be like angels in the 'New Jerusalem' (72). Hence there is a hope for an eternal life – one that is consistent with reductive materialism, and seemingly, devoid of God.

Another, more interesting, reason might be that AI offers us the hope of fulfilling our need to relate to a being that is 'totally other' than ourselves. If God might be found too demanding or a little disturbing, the intelligent machine might be a safe substitute. Herzfeld is surely onto something here; why else such a fascination with ghosts, spirits, angels and aliens? The very possibility excites us, and the attraction is in the 'otherness' (so much more so than chatting to the next door neighbour). But this is the ultimate sin of hubris. Herzfeld states that 'To replace relationship with God with our own artefacts...is the clearest form of idolatry' (83).

Herzfeld's book is a very engaging read; it might leave the reader a little more sceptical about the possibilities of AI, but it will certainly fuel the imagination about what the world would be like should that possibility be realised.

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### **Roger Trigg**

#### ***Philosophy Matters: An Introduction to Philosophy***

Oxford: Blackwell, 2002. 157 pp. pb.  
£9.99. ISBN 0-631-22546-3;  
hb. £45.00. ISBN 0-631-22545-5

This book's title aptly signals its content: philosophy matters precisely because it has matters of import to analyse, not merely analytical tools to sharpen. It is also an introduction to matters philosophical. It approaches its topics simply with few presuppositions; its style is accessible; its coverage of traditional and contemporary issues well balanced. To 'road test' the book, I also invited my daughter, currently planning to study philosophy at university, to read it. She was impressed by the consistency of its realist and anti-relativist arguments and found its glossary of philosophical terms particularly helpful.

The book's apparent simplicity, however, easily belies its sophistication. This resides as much in what it leaves to emerge implicitly as in what it states explicitly. Several subtle *leitmotifs* likely to interest those involved in the science and religion debate include: the inability of science to substitute for philosophy; the need for rationality (and possibly a revived dualism) to understand ourselves and the world; and the self-refuting aspects of many fashionable philosophical positions, including those misinformed by scientism. In this sense, Trigg's opening chapter cleverly sets the scene for what follows as well as providing useful background on the emergence of Western philosophy. Beginning with a discussion of Socratic times he diagnoses a cultural tension between relativism and materialism which remains to this day. Both, we are told, pose problems for reason and philosophy, since '...it is difficult if not impossible to be both a consistent relativist and a philosopher' (8,9), and, 'in the same way an appeal to reason raises problems for the convinced materialist' (9).

These themes are then developed further as the paradoxical, self-subverting quality common to post-modernism, eliminative materialism, extreme Darwinism, determinism and physicalism is exposed and subjected to a consistent critique. All such positions presuppose truth and reason, yet all in their different ways undermine them. The status of scientific laws is also discussed. Trigg avoids reifying laws into ontological necessities, preferring instead to treat them epistemologically as contingent descriptions of a pre-ordered cosmos. Moreover, '[the] question of the origin of order and regularity has to return to centre stage, as a philosophical question that cannot be brushed aside' (110). Ducking this metaphysical question, he believes, has led many of his colleagues into the *cul-de-sacs* of scientism and relativism.

The author's theist sympathies are clearly apparent throughout. Doubtless these are already well known to readers of this journal (cf. Trigg, Roger 'A Christian Basis for Science', *Science and Christian Belief* (2003) 15, 3-15), and several themes from his recent *SCB* article are explored in more detail here, though for a different purpose and from a converging perspective. Whereas Trigg's article examines how a doctrine of creation and God given rationality offer metaphysical grounding for science, his book explores the reasonableness and trustworthiness of reason itself, 'the candle of the Lord' (88), and the incoherence of positions which undermine them. I expect, therefore, that anyone whose religious beliefs are partly affirmed by the sheer existence of rationality will find much of interest here. Whether *Philosophy Matters* proves as attractive to those who adhere to a more biblically based, Christocentric realism remains to be seen. For my money this is an excellent book, which I strongly recommend, both as philosophical background and a useful source for apologetics. It inspires confidence in reason's ability to point beyond the contingent toward the infinite. It is also a wholesome introduction to philoso-

phy. Reading between its lines, we are subtly lured into assenting to the existence of the 'unknown God', the underwriter of all that is made, whom St Paul made known more fully to the Athenians (Acts 17: 22f).

Faith and Reason, according to the Papal encyclical *Fides et Ratio*, are 'two wings on which the human spirit rises to the contemplation of truth' (1). Here we learn that one of those wings is still strong and intact, simultaneously increasing our trust in the airworthiness of the other.

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**T. Peters & G. Bennett (eds),**  
*Bridging Science and Religion*,  
London: SCM Press, 2002. 260 pp. pb.,  
£16.95, ISBN 0-334-02893-0

This is 'a collection of essays emphasizing the global breadth and contextual relevance of building bridges between science and religion.'(2). It is intended that it should provide 'a basic resource for use in classrooms in Asia, Australia, Europe, Africa and the Americas'. (v) Fourteen authors, some of whom are well known, contribute chapters falling under three headings: 'Methodology: How Bridges are Built', 'Constructing Scientific Spans' and 'Constructing Religious Spans'. In addition to the customary endnotes for each chapter and an index, there are 'Authors' Bibliographies and Further Reading'.

The introduction indicates that the starting point for this collection is a presupposition of what Ted Peters refers to as 'hypothetical consonance' between the two areas of study, avoiding premature judgement on what conclusions will be reached.

Two chapters appear under the 'Methodology' section and four under 'Constructing Scientific Spans'. The first two chapters respectively examine mutual interactions in science and theology and the building of bridges in a post-modern age. The four papers in section two address the substantive issues of divine action, biological evolution, genetics and neuroscience. What is striking about these first six chapters is the clear and concise overview which each provides of the key issues in the topic it covers, including detailed comments on the various positions which have been developed. This makes these chapters a good resource for those who wish to 'come up to speed' in the exploration of issues of science and religion, either for the first time or as an update. That helps to realise the editors' intention to produce a book which is 'a basic resource for use in classrooms...', making it suitable at appropriate academic levels in the continents mentioned earlier, as an initial reader, a reference work and a refresher. In the UK for example, in addition to appealing to a thoughtful general readership, this book could be expected to be read by staff and students of appropriate courses at undergraduate and taught Masters' levels as well as by researchers, and would also be useful to teachers of sixth-formers and some of their students.

The third section on 'Constructing Religious Spans' contributes to filling in something of a gap in the literature on 'the global nature of dialogue' through offering contributions from Buddhist, Christian, Hindu, Jewish and Moslem writers. These chapters will be a particularly helpful resource for those running general courses on science and religion.

This book fulfils a distinctive role in the current literature; and I shall certainly want to reread sections of the material.

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**Michael Ruse**  
***Darwin and Design***

Cambridge, MA: Harvard University Press, 2003. 371 pp. hb. ISBN 0-674-01023-X

One of Thomas Aquinas' five great proofs for the existence of God was the teleological argument, or 'argument from design': that unintelligent natural bodies fulfil intelligent ends, demonstrating that a greater intelligence must have designed them. This property is nowhere more evident than in biology, where both the structures and behaviour of living systems are so complex as to demand the explanation of a designer.

Until, that is, a nineteenth-century naturalist named Charles Darwin proposed his theory of natural selection, explaining how all the apparently designed features of living organisms could arise by chance. Despite a rear-guard action by increasingly desperate theologians, the argument from design was rapidly consigned to the rubbish bin once and for all. Wasn't it?

Why, then, do biologists still use design language to describe the natural world? We continually speak of the purpose and function of a particular organ, cell or molecule. Even Richard Dawkins, the arch anti-designer, writes about the 'Selfish Gene' – as though a DNA sequence could have goals or motivations. Isn't this a little inconsistent? After all, 'Rarely does anyone ask what function the moon serves' (7).

This is the conundrum that Michael Ruse has set himself to answer in *Darwin and Design*, his third book on the history of evolution. As a historian first and foremost, he traces the development of the argument from design, from Plato, through the advent of Darwinism and on to the present day. In the light of what he uncovers he then evaluates modern sceptics of natural selection, such as the 'Intelligent Design' camp and Stephen Jay Gould.

This approach necessitates covering a lot of ground very quickly, which the author manages to do in a consistently engaging and enjoyable way. Often, however, he is only able to discuss an idea briefly before moving on to the next, so a reader unfamiliar with the material will find it helpful to keep a notebook handy to record key individuals and 'isms' for when they are referred to later in the book.

The period in history on which Ruse focuses most closely is, naturally, the nineteenth century, and this is undoubtedly the strongest part of the book. He rapidly demonstrates that the popular perception of the advent of Darwinism (as summarised in the opening of this review) is both greatly oversimplified and often incorrect. Many of the ideas behind the theory of evolution were already widely accepted long before *On the Origin of Species* was published. Darwin's great proponent in America, Asa Gray, saw no conflict between natural selection and his Christian faith. And evolution as a branch of science was not truly established until almost a century later when the molecular mechanisms underlying natural selection began to be discovered. The author is a firm believer in the influence of culture on his subjects of study, even as they in turn influence the culture from which they came. He is also just as interested in the conflicts within the world of science over evolution as with those in the world of theology, and as a scientist I found this a fascinating part of the story.

One of the most appealing things about this book is its even-handedness; Ruse himself is a convinced Darwinian, but presents even those arguments with which he disagrees as clearly and positively as would their supporters. He states all the major positions on an issue and their strengths and weaknesses before making any judgement, and avoids taking a pejorative tone at any point.

Finally, the last chapter (on the 'Intel-

ligent Design' argument) deserves special mention, as it takes the book away from a fascinating historical survey into a current controversy. As ever the rival arguments are clearly explained, but it is the conclusion which is most thought-provoking. Ruse feels that 'Behe, Dembski, and their nemesis, Dawkins, share a desire to return to the high Victorian era, where Britain ruled the waves and science and religion could never agree...But the world has moved on' (333). Instead he argues for a new 'theology of nature,' which appreciates and rejoices in the complexity of the natural world without requiring that it prove the existence of a designer.

In summary, this is a book from which anyone with an interest in the theory of evolution, whether scientist or theologian, will garner much enjoyment and learn a great deal. Highly recommended.

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**Simon Conway Morris**  
***Life's Solution. Inevitable Humans in a Lonely Universe***

Cambridge: Cambridge University Press  
2003. pp. xvi + 464, hb £18.95. ISBN 0-521-82704-3

Let me begin with a confession, which will condemn me utterly in the eyes of some. The story of evolution I was taught at school made sense of a vast array of hitherto unrelated facts; it was intrinsically exciting and convincing. In retrospect, one of the factors which prepared me for becoming a Christian was the wonder and the order in the living world seen as the result of an evolutionary process. When I was faced with a clear explanation of the meaning of Christ's death on the Cross, it seemed self-evident that the God who had provided the way of salvation was the same one who had made me and the world in which I lived.

I don't mean to imply that I argued from evolution to redemption nor that my conversion led me to a belief in evolution. My point is merely (but importantly) that the God of the Bible in whom I believe is also the Lord of Creation, who has brought our world into being through processes which I, as a scientist, can perceive through my own studies.

I begin my review of *Life's Solution* in this way because I have a suspicion that the author, Simon Conway Morris, may be treading the same intellectual path as I did. I may be completely wrong. Conway Morris does not relate his own religious beliefs in his book, but he develops his argument from straightforward sophisticated evolutionary biology to a conclusion that 'the complexity and beauty of "Life's solution" can never cease to astound. None of it presupposes, let alone proves, the existence of God, but all is congruent. For some it will remain as the pointless activity of the Blind Watchmaker, but others may prefer to remove their dark glasses. The choice, of course, is yours' (p. 330). In reaching this conclusion, he calls upon (among others) Michael Polanyi, Howard Van Till and G.K. Chesterton.

*Life's Solution* is not primarily a work of apologetic or polemic; it is a book of, and about sciences. I use the plural intentionally. Conway Morris is a geologist by trade. He is Professor of Evolutionary Palaeobiology at the University of Cambridge, best known to evolutionary scientists for his fundamental criticisms of Stephen Gould's interpretation of the early Cambrian fossils of the Burgess Shale; perhaps more widely known for his Royal Institution Christmas Lectures in 1996. In this new book he ranges from astrobiology to the probability and efficiency of DNA; from the origin of life to the factors which must have been involved in the evolution of *Homo sapiens*. He is a clear writer, which is a good thing because he covers a bewildering span of knowledge with authority – the notes alone occupy 113 pages. But Conway Morris is not concerned to dis-

play virtuosity. His aim is to show that human beings are an (almost) inevitable consequence of the evolutionary process; that it is not true (as Gould frequently claimed) that 're-running the tape of evolution' would produce a different result every time. For Conway Morris, there is little room for the randomness (or happenstance as Americans call it) that critics argue is a dominating feature of evolutionary lineages.

The theme of *Life's Solution* is the reality and commonness of evolutionary convergence, 'the recurrent tendency of biological organization to arrive at the same "solution" to a particular "need"'. The book is not a student text (which format the author labels as 'a zoo of good intentions'); it is largely made up of examining a plethora of systems – biochemical, physiological, anatomical and (perhaps crucially) genetical, showing how they can provide only a limited number of solutions to any problem, so that 'evolutionary options' are in practice very constrained. This means that any one underlying process may be recruited for different purposes. Conway Morris calls this 'cobbling and co-option'. For example, the crystalline proteins of the eye lenses have been repeatedly and independently 'redeployed' since their origin as stress-related proteins in micro-organisms millions of years before any eye existed. He emphasises what he calls the 'principle of inherency' whereby many of the basic building blocks of complex structures are available long before they are recruited for new and more sophisticated tasks. This means, of course, that evolution is not forever dependent on the occurrence of 'chance' mutations; embryology is more important than new inherited variation.

Many of the examples considered by Conway Morris fall into the category which Darwin called 'cases of special difficulty' and which R.A. Fisher pointed out are 'difficulties less of the reason than of the imagination' – the acuity of the mammalian eye, and so on. Conway Morris shows how such adaptations could have

arisen through conventional Darwinian mechanisms. He is not the first to do this. The novelty of his approach is to emphasise the repeated emergence of similar 'solutions' to any particular problem. For example, there have been '20 or even more independent lines of differentiation [towards eye perfection], including at least 15 cases of independent attainments of photoreceptors with a distinct lens'. The same thing happens with complex behaviours, including sociality and tool-using. In New Zealand where there are no native land mammals, 'mammalness' has developed among both birds and invertebrates.

An important principle that emerges (and one which, as Conway Morris points out, is generally ignored) is that convergence (i.e. independent emergence of a trait) is strong evidence for adaptation. The converse of this is that 'we live in a constrained world where all may not be possible' (p. 298). When a trait appears, it can legitimately be regarded as an advance for the organism or lineage concerned. This means we have to re-visit the idea of 'progress', which has always been difficult for natural selection theorists since adaptation is directed towards survival and fitness, not some distant teleology.

Another implication of Conway Morris's explorations is their link to the Anthropic Principle. He points out that

Biologists have generally been content to take such features as carbon or water as givens, with life as an emergent inevitability on any suitable planet. But ...at the heart of the study of evolution are two things. One is the uncanny ability of evolution to navigate to the appropriate solution through immense 'hyper-spaces' of biological possibility. The other, equally germane and even more mysterious, is the attempt to explain the origins of sentience, such that the product of ultimately inanimate processes can come to understand both itself, its world and its

(and thus our) strange sense of purpose.

At this point, those who rage against 'naturalism' will relegate *Life's Solution* to the hell reserved for atheism. They will be wrong: what Conway Morris is doing is providing a bridge to physicists and the Anthropic Principle on the one hand, and arguments about the non-physical nature of the soul from neurologists like Malcolm Jeeves and theologians like Tom Wright on the other.

The final chapter is "Towards a theology of evolution?" The author testifies that he 'certainly does not consider religions and metaphysics to be aberrations of the superstitious, delusions of those still enmeshed in medieval credulity....Although the more we explore this world the better is our understanding, this is also accompanied by a growing sense of its extraordinary strangeness and beauty.' He quotes Arthur Peacocke, 'Somehow, biology has produced a being of infinite restlessness, and this certainly raises the question of whether human beings have properly conceived of what their true 'environment' is.' For Conway Morris,

Despite the sleights of hand, special pleading, and sanctimoniousness as the ultra-Darwinists' attempt to smuggle back the moral principle through the agency of the gene, only the most hardened cases would suppose that a map of the genome will provide this millenium's equivalent of the Code of Hamurabi. And yet these myths of genetic determinism, set in a dreary world of reductionism, are being used to drive new agendas.

Conway Morris ends his journey towards theology: 'The principal aim of this book has been to show that the constraints of evolution and the ubiquity of convergence make the emergence of something like ourselves a near-inevitability. Contrary to received wisdom and the prevailing ethos of despair, the contingencies of biological history

will make no long-term difference to the outcome.' This is not theology, but it is certainly opening up a pathway to God which is too often cluttered by the denials and blocks of those who regard any justification for evolution as pointing away from the sort of God revealed in the Bible.

In his autobiography, E.O. Wilson describes how the condemnation of evolution by his Christian mentors turned him away from the faith of his adolescence. He is now the arch-proponent of 'an overarching system where all will be explained – society, art, religion – by the gene' (*Life's Solution*, p. 324). I must remain grateful that in the early stages of my Christian life, I was not assaulted in the same way as Wilson. Conway Morris does not reveal how far he has travelled along this path to faith; I look forward to his next book. As for me, I rejoice in this book because it confirms me in my own understanding of a God who works in and through history, and who has reconciled *all things* to Himself through the Christ's death on the cross (Col. 1: 20). *Life's Solution* is a book of science, not religion. For that reason it is more significant; it joins two worlds and two modes of thought. Like it or not, it is an important book. It should be required reading for all those who take this Journal.

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### **James Jones**

#### ***Jesus and the Earth***

London: SPCK, 2003. 101 pp. pb. £6.99.  
ISBN 0-281-05623-4

James Jones, in his role as Bishop of Liverpool, has shown a great interest in the environment and this small paperback is the result of his study leave in which he examined the attitude of Jesus to the earth. The conventional starting point for

many biblical studies of creation or environmental ethics is Genesis, or possibly the Psalms, Job or Isaiah. Jewish scholars often begin with Deuteronomy (5). James Jones confines his study to the Gospels and what he unearths there is that 'not only was Jesus earthed but also saw his mission as none other than the earthing of heaven' (7). Jesus' preferred title for himself, *the Son of Man* (Hebrew: *ben adam*) means 'the Son of the one hewn from the earth.' The four chapters draw on different aspects of the Son of Man: his authority on earth, his consumption of food and drink, his second coming on clouds and his sowing of good seed.

The surprising observation is that the Bible has more to say about the earth than about heaven or love. Jesus is not only the creator of all things (Col. 1:16) but 'the mission of the Son of Man is the renewing of all things' (19). Jones criticises some forms of Christianity for being too spiritual, denying the essential materialism of creation and the gospel (27) and goes on to argue not for asceticism but for 'ethical consumerism' (33) and 'sustainable consumption'.

In Chapter 3 he describes humans as part of the earth community of all creatures with special responsibility to serve creation and care for animals. In recent years human power to affect nature has vastly increased, leading to an environmental crisis. Jones notes that the Greek word *krisis* means 'judgement' and that to desecrate the earth amounts to blasphemy (64). Yet he observes Jesus' sweat falling on the earth in Gethsemane as symbolic of the earth-redeeming work of the Son of Man (83).

The book concludes by earthing our response in the local parish – 'a corner of creation' for which we can have some direct personal responsibility (92) – and by giving practical guidelines for living environmentally responsible lives. Each chapter also offers helpful questions for personal or group reflection.

This is a very readable, practical book which gives a refreshing view of Jesus' attitude to the earth. James Jones is modest about his scholarship, but brings directness in his approach to the biblical text, giving new and valuable insights to help inform a Christian environmental ethic. The book is essentially a Bible study, but its ideas are easily accessible to non-theologians. The reader is challenged to seriously consider the sacred nature of the earth and to respond in practical ways. It is also a hopeful book, holding on to the optimism of the Liverpool poet Gerard Manley Hopkins, that 'Nature is never spent' (4). Such hope is based on the biblical vision of a new heaven and a new earth with 'the Son of Man as central to the renewal of all things' (15).

**Laurie Burn was formerly a teacher of science and technology, and is currently Minister of Kilmington Baptist Church, near Axminster, Devon.**

### **Steve Hollinghurst**

#### ***New Age, Paganism and Christian Mission***

Cambridge: Grove Books (Evangelism Series no. 64), 2003. 28 pp, pb, £2.50. ISBN 1-85174-546-7

The publicity for Grove Books often contains the epithet, 'Not the last word ... but often the first'. They do, indeed, often provide a useful introduction to a topic for the newcomer. That holds true for this particular booklet.

Steve Hollinghurst is Researcher in Evangelism to Post-Christian Culture at the Church Army Sheffield Centre. In his booklet he does not deal directly with the interface of science and religion. However, the topics he deals with do have implications for it, since both New Age spirituality and Neo-Paganism are significant expressions of religion in society today and they affect their adherents' attitudes towards science and technology.

Adherents of New Age spirituality have something of a love-hate relationship with science. On the one hand they often claim that certain areas of science (quantum theory, relativity and ecology) provide support for their monistic worldview. On the other hand they can lambaste science for its rationalism, claim to objectivity and materialistic view of nature – all of which are antithetical to New Age thinking.

Christians tend to lump Neo-Pagans in with New Agers. Hollinghurst points out that this is an error. Some Neo-Pagans are disillusioned refugees from the New Age. Whereas New Age spirituality is fairly 'fuzzy' and tolerant of Christianity to a degree, willing to embrace Jesus as another 'guru', Neo-Pagans often see themselves as reviving a pre-Christian religion which the church has suppressed, and so see Christianity as a threat. At the heart of much Neo-Paganism is a re-divinising of nature which is a return to the view of nature against which the early modern scientists battled. Hence Neo-Pagans often have a negative attitude to science and technology, seeing them as exploitative of the natural world and ecologically destructive – a critique which needs to be given a hearing.

Scientists who are concerned about the 'public image' of science would do well to read this useful booklet in order to be aware of some significant trends in western society which are bound to have some effect on the way science is regarded within it.

Hollinghurst has positive suggestions to make about how Christians should set about engaging in dialogue with the adherents of these two post-modern spiritualities. Here too, scientists who are Christians will find useful insights.

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