

Book Reviews

Hugh Miller

The Testimony of the Rocks

Or, geology in its bearings on the two theologies, natural and revealed

St Matthews Publishing Ltd., 2001.

402pp.hb. £8.99. ISBN 190154611.

This book is a readable and informative insight into the interaction of science and faith in the pre-Darwinian, mid-nineteenth century. Essentially it is the republication of a collection of twelve lectures given by Hugh Miller between 1852 and 1855, and first printed in 1857 under the same title. Some adjustment is needed to appreciate the style of the prose, but ‘as the David Attenborough or Stephen Jay Gould of that pre-television era’, Miller’s lectures, although appearing technical were intended for, and would still appeal to, a fairly broad audience.

Miller himself writes from within an illustrious school of British palaeontologists and geologists of the first half of the nineteenth century (including Buckland, Sedgwick, Murchison and Conybeare). He is particularly renowned for his discovery of the unknown fishes in the Old Red Sandstone near Cromarty, now in the National Museum of Scotland. As one of the last ‘scriptural geologists’ (he held strong Calvinist convictions and was editor of the Free Church newspaper), his writing mixes religion and science freely. His strong personal convictions and commitment to natural theology inspired his work as a geologist. He proposes what has become known as a semi-deist position, arguing that the geological record (particularly at the Palaeozoic, Secondary and Tertiary divides) gave evidence that God had not created the world and left it to itself, but that there have been times of great change, catastrophe and creative introduction (123). Miller put these changes down to the Creator.

This republication is helpfully introduced by Dr Michael Taylor (National Museums of Scotland) and this greatly enhances its accessibility for those less familiar with the work and times of Miller. The first and last two lectures have a more technical focus, concentrating on the palaeontology. The middle lectures have a freer and at times more rhetorical feel. In lectures 3 and 4 he takes on the issue of the relationship between geological evidence and creation narratives (termed by Miller as the Mosaic record and understood as ‘the retrospective prophecy’ of Genesis). In lectures 7 and 8 he debates the extent and relevance of the Noachian deluge to geological study. Helpfully he makes the point that the question is not primarily whether the accounts are believable so much as whether we understand them correctly (271). His dual commitment to good science and good biblical interpretation comes out most strongly in lecture 9; and his response to those that he calls the anti-geologists has a remarkably contemporary feel (lecture 10).

The value of reading the lectures will depend on your purpose in doing so. As an insight into natural theology, semi-deist arguments and Miller’s views on the relationship between Geology and Christian faith, they are superb. As a fairly damning indictment of those he called the ‘anti-geologists’, and what we might call ‘young Earth advocates’ and ‘one flood covers all’ proponents, they are priceless, given the time when they were written and the recurring nature of the arguments. As an insight into the history of palaeontological science it is also a good resource. What it lacks, simply because it is beyond the remit of the book, is any critique of Miller’s ideas. This you will have to do for yourself. But for understanding, there is nothing quite as good as reading what the author actually said, and as such, if you haven’t got

the original, I recommend it.

Peter Lynch is the Pastor of Worle Baptist Church, Weston-Super-Mare and a student at Bristol Baptist College. He was formerly a Geologist working in the oil industry.

Ronald L. Numbers and John Stenhouse (eds.)

Disseminating Darwinism: The role of place, race, religion, and gender

Cambridge: Cambridge University Press, 2001 (first published hb. 1999). 300 pp. pb. £14.95. ISBN 0-521-01105-1

The comparative reception of Darwinism and the restructuring of the intellectual landscape that followed have long interested students of science, philosophy, and history. Recent scholarship on this theme, including the volume under review, has increasingly emphasised the myriad ways that Darwinism was appropriated by individuals and communities, moving away from any reified notion of Darwinism as a solitary idea. Peter Bowler stimulated this trend two decades ago with his *The Eclipse of Darwinism* (1983). Though the idea that evolution proceeds mainly by natural selection eventually gained the widespread support of Anglophone intellectuals in the 1930s, the roughly seventy years prior to this modern synthesis are interesting precisely because Darwin's evolutionary ideas were not accorded clear scientific authority. In particular, Bowler demonstrated that when people accepted Darwinism in this time, they rarely accepted natural selection. Hence Darwin's theory of natural selection and Darwinism are not univocal. The range of responses to Darwin's ideas, which fell along multiple spectrums – place, race, religion and gender specifically highlighted here – thus complicates the attempt to understand the relationship between science and society in the modern world. Furthermore, as communities and individuals changed their views of

Darwinism, Darwinism itself changed, took on new ideological and cultural associations, and gained increasingly strident spokespersons and enemies. *Disseminating Darwinism* stands in a short tradition of works that seek to spell out some of the dimensions of this reception, preceded by Thomas Glick's *Comparative Reception of Darwinism* (1974) and the section entitled 'Towards the Comparative Reception of Darwinism' in David Kohn's *Darwinian Heritage* (1985).

Disseminating Darwinism, however, moves well beyond its predecessors, especially in its sensitivity to 'the local, the specific, the situated' – in terms of religious cultures, imperialist intentions, climate and geographical orientation (7). Its essays largely focus on the English-speaking periphery (Scotland, Ireland, New Zealand, Australia, Canada, the American South) and minority groups in the U.S. (women, blacks, Catholics and Jews). Nine of the book's ten essays discuss religious communities or traditions, at least in part. David Livingstone's opening essay is representative and exemplary of this religious comparison. He looks at differences in the ways that three Presbyterian cultures – at Princeton, Belfast and Edinburgh – reacted to Darwinism. In Belfast, an early defence of Darwinism from John Tyndall (1874) prejudiced its Presbyterian residents against a rapprochement with evolutionary theory. Edinburgh Presbyterians, on the other end of the spectrum, found the evolutionary claims of Darwinism relatively innocuous compared to the ideological threats of biblical higher criticism and German idealism making headway among intellectuals there. The particular histories of each community help to specify what Darwinism meant in each context as well as explain the reactions it received.

Marc Swetlitz's essay on American Jews and Scott Appleby's essay on American Roman Catholics carry the discussion of religious responses to Darwinism beyond the conventional focus on Protes-

tantism. The majority of Reform Jews accepted organic evolution by the 1890s, and traditionalist Jews were divided over it. Unlike Protestant thinkers, Reform Jews and the traditionalists who accepted evolution did not come to this position by theological accommodation. Reform Jews had modified theology prior to accepting evolution, and traditionalists wrote little on theological themes. Similarly, Appleby demonstrates how the scientific questions (which were not of much interest to the Church) and the philosophical questions (which were) were wrapped up in the Vatican's response to an internal political issue: the question of Americanism among Catholics in the United States. Both the Jewish and Catholic responses reveal that, for some religious communities, evolution itself was not terribly upsetting. Rather, what troubled them was the way that evolution was used to bolster certain projects aimed at an internal transformation within the respective communities.

Barry Butcher, John Stenhouse, and Suzanne Zeller offer implicit comparisons to Great Britain in their treatments of Darwinism in Australia, New Zealand and Canada, respectively. These essays provocatively demonstrate that the British periphery offered much the same as Britain in terms of opinions, philosophies and religious convictions. 'Distance,' says Butcher, 'was as much a function of social and professional class as of geography' (41). (Class is one aspect of Darwinism's dissemination that, despite this nod, receives little attention in the book.) In general, however, Australia and Canada were much slower to embrace evolution than New Zealand, owing principally, as Stenhouse explains, to the infancy of the latter's political, educational, and religious institutions. In each case, distance measured by miles was not as important as variations in social and physical geography – such as encounters with native peoples, regional topography, or the absence of scientific societies.

Two essays look at the role of race in attitudes about Darwinism. Stenhouse's essay on New Zealand stresses the role that racial conflict between the British immigrants and the indigenous Maori played in conditioning New Zealanders' reception of Darwinism. Darwinism, in turn, fed local racial animosities. According to one local newspaper editor, 'Mr Darwin' demonstrated that 'the Maori [will] disappear before the white man' (84). Eric Anderson's path-breaking essay on the American black response highlights the surprising absence of black opposition to Darwin, despite the ways that Darwinian ideas were used as ideological tools in the hands of America's white oppressors. The few blacks who took notice of scientific debates were more concerned with the ideological threat of polygenism, which Darwin in fact contested. Again, the immediate circumstances of the community conditioned the response.

Only one essay partly fulfils the promise of the book's subtitle to explore gender. Sally Gregory Kohlstedt and Mark Jorgensen offer an analysis of women's reaction to Darwinism, specifically in the context of the emerging women's rights movement. In contrast to the other writers in this volume, Kohlstedt and Jorgensen have engaged a scientific hypothesis, that of sexual selection. But their analysis of this hypothesis – and the conditions under which it was received by men – goes little beyond noting that, '[Darwin] not only stressed sex differences in an explicitly bipolar way but also expressed a consequential "inequality between the sexes"' (269). Insofar as this is true, Darwin's treatment of the sexes, and its reception, is hardly peculiar for the time. While they helpfully demonstrate that some women forcefully rejected aspects of what came to be subsumed under the rubric Darwinism, they leave *gender*, as a category of analysis, unexplored.

A recurrent topic is how social commentators interpreted Darwinism as a

naturalisation of progress, fortifying their progressivism with the epistemic privileges of natural science. But, progress (like Darwinism) is ambiguous, and the relationship between Darwinism and the cultures that it inhabited is complicated. The essays here suggest that cultural conditions, agendas and programmes were more often justified by the presumed acceptance of Darwinism than they influenced that reception. Paradoxically, the ambiguity of progress permitted Darwinism to function simultaneously as a justification of the status quo (as in the argument for the Maori's inevitable extinction) and the inspiration for underprivileged people groups to demand greater consideration. This new mode for the historical analysis of Darwinism – science as appropriated rather than science as authority – is a considerable development.

Each of the essays contributes to our understanding of Darwinism's dissemination. Yet some are better than others. The essay on the American South by Ronald Numbers and Lester Stephens, for example, sets out to challenge the label of that region as anti-Darwinian. By focusing on a small handful of professors and intellectuals who cautiously embraced evolution, however, they have in fact confirmed the stereotype. Livingstone's essay likewise promises more than it delivers. He intended to offer an analysis of geographical variation among Presbyterians which would determine 'not only what could be *said*, but what could be *heard*, about evolution' (11). Yet his research focuses nearly exclusively on intellectuals and what in fact was *said*. Indeed few of the essayists dwell on the thorny problem of the *popular* reception of Darwinism.

There are also limitations resulting from the book's focus. *Disseminating Darwinism* treats Anglophone reactions and does not venture beyond barriers imposed by language. In this respect, New Zealand may well be 'closer' to London than London is to Calais or Brussels.

The 'race' and 'gender' of this book are noticeably underrepresented. Class dimensions of the reception of Darwinism, although well outlined for England (in the works of scholars like Adrian Desmond), are likewise missing in these essays and therefore have not been correlated with the place and religion variables covered here. What was the significance, for example, of Darwinism's role as a tool of radical protest in England and of bourgeois culture in America? Indeed little attention is focused on the sociology of scientific knowledge at all. A natural starting point, of course, would be a thorough analysis of the terms of debate *prior* to the advent of Darwinism in these regions and cultures. But these terms are assumed and not studied. Subsequently, the essays have little to say about empirical evidence and the perennial controversy over its interpretation; detailed cultural history has taken the place of careful attention to scientific ideas. In the future, we may hope to see cultural studies that not only situate, but also analyse. The merit of this volume, however, is that it suggests what it cannot comprehensively treat.

John M. Drake is an ecologist and R. Bryan Bademan is a historian of nineteenth-century America at the University of Notre Dame (USA).

Collins, C. J.,

The God of Miracles: An exegetical examination of God's action in the world

Leicester: Apollos, 2001. 219 pp. pb.,
£11.99, ISBN 0-85111-477-6

The special contribution which the author of this book aims to provide for his readers, as distinct from the recent book *In Defence of Miracles* by Geivett and Habermas, is an exegetical and theological underpinning to the subject of miracles. In this it makes a useful contribution to the literature.

A considerable fraction of the book is devoted to examining three ‘chief competitors’ for modelling divine action within ‘traditional (Christian) theism’. These are labelled *providentialism*, *occasionalism* and *supernaturalism*. A fourth term, *theistic naturalism*, claimed to have been coined by the author to embrace ‘liberal theology’, is referred to briefly. Phillip Johnson also uses the term in *Darwinism Defeated?* (1999, p. 52). For me, the book got off to something of a shaky start, partly due to the nomenclature, partly due to the different explanations of the three ‘chief competitors’ which appeared *passim* and partly due to the naming of various people as exemplars of particular positions.

On the matter of nomenclature, I would like to repeat the comment I made in a recent review of *Darwinism Defeated?* in this journal [13(1), 2001, 91], about the slippery word ‘naturalism’. I said ‘Johnson’s phrase “theistic naturalism” is an oxymoron, given the usual understanding of “naturalism”. A quick consultation of five dictionaries of philosophy confirms that “naturalism” is generally understood to mean that “ultimately nothing resists explanation by the methods characteristic of the natural sciences”, rendering “theistic naturalism” a contradiction in terms.’ ‘Deistic naturalism’ (20) suffers from the same weakness.

Providentialism, *occasionalism* and *supernaturalism* are explicated several times throughout the book. But what is said about them in various places raised initial questions in my mind as to the extent of the distinguishing characteristics which the author attributes to the three positions. For instance, I found nothing to disagree with in this quotation from Berkouwer (14) which was said to summarise *occasionalism*:

‘Laws of nature are not alternatives to divine activity but only our codification of that activity in its normal manifestation, and a miracle means nothing more than that God at a given moment wills a cer-

tain thing to occur differently than it had up to that moment been willed by him to occur.’

But I disagree with the occasionalist position, as explicated later (135), an explication which seems more sharply to encapsulate the position:

‘Occasionalism denies the category of ‘natural’ altogether, and claims that what we call ‘causes’ are merely the occasion for God to produce the effects – without created things making any causal contribution.’

However, I don’t want to make too much of what I found to be some initial lack of clarity about the three positions. Perhaps I was slow to catch on! Anyway matters became clearer as I read further. On the matter of the naming of various people as exemplars of particular positions, I felt a little uneasy about a few of the classifications, but space forbids me to enlarge further. However, that’s enough of initial reservations. The author does a good job of examining phrases like ‘nature’, ‘cause’, ‘natural properties’, ‘natural’ and ‘supernatural’ which are relevant to the discussion.

A quick glance at the main title may suggest ‘just another book on miracles’, with the usual look at Hume’s criticisms. Certainly Hume receives attention, but no more than five pages. The subtitle: *An exegetical examination of God’s action in the world* indicates the book’s main strength and serves as a reminder that the topic of miracles raises a lot more issues than may appear at first sight. While prayer is referred to *passim*, the latter part of the book, in a brief fifteen pages, raises many of these issues. They include divine action and the problem of evil, origins, the intelligent design arguments and the ‘God-of-the-gaps’ – although I remain unpersuaded that the ID argument escapes the charge of being a version of the ‘God-of-the-gaps’.

One noticeable absence in this detailed and helpful attempt to lay firm biblical foundations for understanding how God

acts in his world, is some consideration of the arguments of Polkinghorne and Peacocke as to *how* God achieves changes, e.g. in answer to prayer, in a world characterised by a tight chain mesh of cause and effect. But even in a book of 219 pages, it is difficult to fit everything in.

Mike Poole is Visiting Research Fellow in Science and Religion in the Department of Education & Professional Studies at King's College London.

Keith T. Maslin

Introduction to the Philosophy of mind

Cambridge: Polity Press, 2001. 332pp.
pb. £14.99. ISBN 0-7456-1688-7

Keith Maslin's introduction to the philosophy of mind succeeds on many fronts. Whilst offering a comprehensive outline of the history of the subject, it also includes critical discussions on contemporary issues and throughout the book there are questions for individual and group reflection. He deals with four main theories of the mind; Dualism, Mind/Brain Identity theory, Functionalism and Philosophical Behaviourism. One of the author's aims is to get readers to think for themselves and Maslin is obviously reluctant to 'give the answers' or allow the reader to skip ahead before thinking the problems through. This 'textbook' format should not discourage the mature thinker or student from picking up the book. There is plenty of meat even for the experienced; it is more thorough than many of the classical introductions to philosophy of mind in its scope.

Maslin begins with a tantalising introduction to the kinds of problems that philosophers are essentially trying to address through their various theories and models of the mind, thus whetting the reader's appetite for what is to follow. He takes the reader through the various theories and 'isms' of the 20th century and all are given a fair treatment. Even Donald Davidson's 'Anomalous Monism',

which is notoriously difficult, is made quite clear and comment and reflection are offered.

Maslin emphasises the importance of taking consciousness very seriously and holds that it is not something that is reducible to physical phenomena. For him, consciousness is *the* mark of the mental (30). He ultimately rejects strong 'eliminative' materialism. This position holds that our entire conception of the mental ('folk psychology' as they would have it), is utterly misguided in the way that geocentricism is, needing to be entirely replaced by a mature neuroscience. He also rejects philosophical behaviourism because both these theories 'fail to take consciousness seriously, either by making no room for it, or by explicitly denying its existence' (162). Maslin himself favours a 'non-reductive-monist' model thus doing justice to our common sense conception of the mind whilst avoiding the multiplication of entities in his ontology.

If there has to be a criticism of the book, it is the lack of any mention of Berkeley and his Idealism. Not many contemporary philosophers follow the kind of Idealism that Berkeley put forward, but it represents one end of the spectrum of choices, associated as it is with other philosophical problems such as 'solipsism' and the 'problem of other minds'. It is also a position that is notoriously difficult to refute. The otherwise thoroughness and scope of the book make this surprising.

Also, though Descartes is given plenty of space, his dualism is dismissed a little too hastily I feel and perhaps on the wrong grounds. He challenges Descartes on the basis that his argument is an 'argument from doubt' or an argument from 'clear and distinct ideas', both of which are proverbially weak, being impotent as they are in establishing the mind as a logical substance. I understand Descartes' argument to be the 'Real Distinction Argument' that cannot be tackled quite so briskly. Was not Descartes'

point that the mind cannot be a property of the body because the existence of the body could be doubted where one would expect it to be presupposed? Dualism might be false, but it is important not to attack a caricature of the argument. But I want to praise the book; it is the best of its kind that I have encountered, especially for clarity and engagement. I wish I had been able to read it as an undergraduate.

Peter McCarthy is studying for a PhD in philosophy at Southampton University.

Peter Coles (Editor)

The Routledge Companion to the New Cosmology

London & New York: Routledge, 2001.
xiv + 392 pp. pb. £12.99. ISBN 0-415-24312-2

The 'new cosmology' which is the subject of this book has had a prominent place in discussions of science and religion for several decades. There has been debate about the 'fine-tuning' of the cosmos for life, the place (or lack of it) for God as author of the 'Big Bang', the significance of the 'block universe' interpretation of the Theory of Relativity, and much more. This *Companion* consists of two parts. Approximately the first third of it is taken up with six essays that provide an overall survey of the new cosmology. The rest of the book consists of a dictionary which has articles of very varying length that give in-depth explanations of key themes and concepts and brief biographies of important contributors to the field. There are ample cross-references between the essays and articles and between the articles. The book also has a good index.

The value of this book to readers of this Journal does not lie in any direct contribution to the science-religion debate. A sampling of the articles produced only one reference to that debate, in the arti-

cle on the Anthropic Principle. Its value is as an accessible sourcebook for reliable information about this important field of science. As someone who is neither an astronomer nor a cosmologist I found both the essays and articles readily accessible. Someone with no background in the physical sciences would find it a heavier read, but not inaccessible except for some more technical entries, and these are given a one- or two-star rating according to their mathematical difficulty.

The Editor and publishers are to be thanked for this handy, valuable and relatively inexpensive *Companion* to an important area of modern science. Use of it by those involved in the science-religion debate who are not cosmologists can only improve their understanding, and so the level of debate.

Ernest Lucas is Vice-Principal and Tutor in Biblical Studies at Bristol Baptist College. He has a background in biochemical research.

Simon. B. A. Winchester

The Map that Changed the World : the tale of William Smith and the birth of a science

London: Viking, 2001. 338pp. hb. £12.99.
ISBN 0-670-88407-3

Over the last few years there have been several popular works on the history of science and Simon Winchester has produced a very readable life of William Smith, the 'Father of English Geology'. The author is both a geologist and a journalist and brings both skills to his book. (His geological background is almost identical to mine as he was two years my senior at university and began work in a Ugandan mine.)

William Smith is one of the many neglected scientists, whose significance is not widely known. His story is accurately and well told and how a canal engineer laid down the basis of geological correla-

tion thus enabling the strata to be put into historical order, makes a gripping read. As a canal engineer Smith developed his understanding of fossils in the strata in the coal seams and canals near Bath, before travelling the length of England. The book details his travails in publishing his map in 1815, his spell in a debtors' prison and how his work was plagiarised by George Greenough. At the end of the 1820s Smith was befriended by clerical geologists such as Sedgwick and Buckland, who enabled him to be given the recognition he deserved. To know more, simply read the book.

However Winchester's book suffers from two weaknesses. First, he makes too much of a hero of Smith and ignores his contemporaries, thus giving the impression that Smith is the father of geology and not only the 'Father of English Geology'. The crucial decades for the growth of geology were 1780 to 1800, as advances were made simultaneously throughout Europe. Winchester gives a little recognition to Hutton and the much-maligned Werner (whose work is now being recognised and who also attempted a map of his homeland), but does not refer to de Saussure of Geneva and the Frenchmen, Soulvie, Cuvier and Brogniart. Consequently the subtitle *The tale of William Smith and the birth of a science* gives insufficient recognition to the other numerous midwives of geology.

Secondly, Winchester has a totally inaccurate understanding of the British churches in relation to the rise of geology and simply repeats, with exaggerations, the old myths that there was a mighty war of Genesis and geology in the early 19th Century. He refers to the 'church' negatively some thirty times and it gets tedious. His prejudice surfaces most blatantly on p29, 'The hunch that God might not have done precisely as Bishop Ussher had suggested ... was beginning to be tested by real thinkers, by rationalists, by radically inclined scientists who were bold enough to challenge both the dogma and the law, the clerics and the courts.'

Or to put not too fine a point on it, only those who were not Christians in any way. Here Winchester is writing of the 1790s a mere one hundred years after the Revd John Ray and Edward Lhwyd were questioning the age of the earth. In fact throughout the previous century most thinkers, Christian or deist, thought the earth was older than Ussher's estimate. What are the 'dogma and the law' which forbade suggestions of an old earth? Granted some clerics did hold to Ussher's age but the vast majority did not. Lastly, who was under any threat from the law for holding to millions of years? How does Winchester explain that it was clerics Richardson and Townsend who spread Smith's ideas and those of Playfair Hutton? In his discussion of the clerical trio Buckland, Sedgwick and Conybeare he manages not to mention that they were ordained and any reader of the book could be forgiven if he did not realise that Sedgwick was a devout evangelical cleric! Winchester simply cannot accept that a clergyman could actually accept geological ages without its challenging his faith, as is evidenced by his comments on Lewis, who helped Murchison unravel the Silurian in 1831. He wrote, 'Many of the ... fossilists were ... called *divines* – a curious happenstance, considering the assault that any intelligent understanding of fossils would later have on divinity's most firmly held notions, like the Creation and the Flood. The Reverend Thomas Lewis of Ross-on-Wye is characteristic of the type' (115) This can only be described as complete and utter nonsense, if not bigotry. The author has absolutely no knowledge of the doctrine of Creation or the Flood and is ignorant of how the clerical geologists actually thought. His section dealing with Ussher (16–21) is both flippant and inaccurate and even gets the first day of creation on *Monday* 23 October (day one) and the creation of animals on the Thursday 26 October (day six)! Actually Ussher wrote, 'Sexto die, Octobris vigesimo octavo' and it was Friday the day before the Sabbath!

This kind of lampoon is fine for Peter Simple in the *Daily Telegraph* but not for a serious *Guardian* journalist. Winchester has simply not grown out of the outworn conflict thesis of science and religion, which by now should have been rejected by anyone who dabbles in the history of science and Christianity. However it is a persistent myth which is propagated through a popular misunderstanding. This myth encourages both unbelief and creationism.

This book is a veritable curate's egg: on Smith as a geologist it is excellent, but as soon as he puts matters into religious context, rotten as only a rotten egg can be! This could have been an excellent book.

Michael Roberts is Vicar of Cockerham, Glasson and Winmarleigh, near Lancaster.

Robert T. Pennock (editor)
Intelligent Design Creationism and its Critics: Philosophical, Theological, and Scientific Perspectives

Cambridge, Massachusetts: The MIT Press, 2001, 805 + xx pp. pb. £30.95.
ISBN 0-262-66124-1.

Intelligent design (ID) has been described as 'born again creationism', religion cloaked in scientific jargon, and as the last gasp of dying creationism; love it or loathe it, it is impossible to ignore it. However, as this book shows – albeit unwittingly – it is hardly a last gasp: it is alive and well and so too are its critics!

Pennock, author of *Tower of Babel* (reviewed in *S&CB* 13 (1): 83-4), has produced an important book. *Intelligent Design Creationism and Its Critics* comprises 37 articles written by 24 authors (including four articles by Phillip E. Johnson, Pennock and Alvin Plantinga, two by William Dembski, Stephen Jay Gould and Howard J. Van Till). There are

eight original contributions from nine authors – including Roy Clouser, Plantinga, Philip Kitcher and Michael Ruse – the remainder have been published elsewhere. Those who come under examination include Johnson, Plantinga, Dembski, Paul A. Nelson and Michael Behe; the critics include Pennock, Gould, Van Till, Kitcher, Ruse, Evan Fales, Branden Fitelson, Elliott Sober, Richard Dawkins, Nancey Murphy, George C. Williams and Ernan McMullin. There are nine separate sections. Pennock highlights the salient points succinctly and concisely in a brief introduction to each section.

Barbara Forrest's opening piece – written specifically for this volume – provides a brief history of the intelligent design movement's so-called 'wedge strategy', a survey of wedge activities and an analysis of the wedge strategy. It provides a useful context in which to place the intelligent design movement, even if she almost makes the 'wedgers' look like a cult!

The highlight of the book is Section III 'A theoretical conflict? Evolution vs. the Bible'. Here are four articles originally published in *Christian Scholar's Review* by Plantinga, Van Till and McMullin. The issue is not so much on intelligent design as such, but on related issues. The high spot of this section is Plantinga's reply to Van Till and McMullin's responses to Plantinga's original paper. It is a shame that others in this book weren't given an opportunity to respond to their critics, as the format for most sections is an article by an intelligent design advocate followed by the critics. The book would have been much more valuable if those criticised had been given the opportunity to respond in each section. However, as Pennock is an opponent of intelligent design he obviously wants the critics to have the final say.

Several times intelligent design creationists are criticised for not publishing in scientific journals. This is largely true. However, the issue is at heart not one of science but of the role of worldviews in

science. Hence, it is fitting that there should be several articles on the topic of methodological naturalism. If methodological naturalism is valid then intelligent design is misguided, if methodological naturalism is false then intelligent design may well be legitimate.

It would be easy to criticise the selections (why, for example, Peacocke's article?), but a major criticism is the omission of papers. There is nothing by Ratzsch – whose book *Nature, Design and Science: The Status of Design in Natural Science* is perhaps one of the most important academic monographs debunking methodological naturalism; and perhaps more importantly, there are no academic articles by Dembski – Dembski's contributions here are written for a semi-popular audience – and yet there are academic articles criticising him.

The other surprising omission is Plantinga's unpublished 'Naturalism defeated' or ch 12 from his *Warrant and Proper Function*. In Section V ('Plantinga's critique of naturalism and evolution') there is a semi-popular article by him followed by a purpose-written response by Ruse and then technical articles by Fales and by Fitelson and Sober criticising specifically ch 12 of *Warrant and 'Naturalism defeated'*. Plantinga maintains that the probability of rationality (R) given evolution (E) and naturalism (N) (i.e. $P(R|E\&N)$) is extremely low and that naturalism is ultimately self-defeating. If Plantinga's arguments are valid, it suggests the demise of methodological naturalism. It is a pity that Plantinga wasn't asked to respond to the attempted rebuttals of his argument; though the creative editorial selection by Pennock might suggest that Plantinga has been refuted. In fact, this is hardly the case as Beilby's *Naturalism Defeated?* (Cornell University Press, 2002) reveals!

The above comments aside, Pennock has done a marvellous job putting these diverse papers together in one volume. It will provide essential reading for all

those concerned with debunking intelligent design; and for those who advocate intelligent design, it will provide many arguments that they will need to get to grips with and attempt to refute.

Steve Bishop has degrees in physics and theology and is a lecturer at City of Bristol College, Bristol.

**Brenda Beamond, (ed.)
*Genetic Engineering***

Christ and the Cosmos Initiative, 2001.
194pp. pb. £7.00 ISBN 0-9530369-5-7

I once heard a speaker give a talk entitled 'God and the Universe'. He started by saying that he would confine his remarks closely to his subject and leave other speakers to deal with wider issues. Christ and the Cosmos is a similarly wide title but this volume in the series is well focused. The Christ and the Cosmos Initiative was started by a Methodist and exists to help Christians understand the world in which the Gospel has to be preached and lived. This book – number 15 in the series – is devoted to the impact of genetic engineering on the world and it contains a set of chapters written, in the main, by Christians who know the subject well.

After an introductory chapter explaining genetic engineering and some of the broad issues it has thrown up, there follows a major essay on genetically modified crops which takes up about one third of the book. These are succeeded by chapters on genetic engineering and medicine, cloning, the ethics of genetic engineering and an additional paper on the benefits and risks of genetic engineering for the natural environment of New Zealand. All the contributions are well written and adequately referenced. They broadly support the view that genetic engineering is a good thing but must be applied with great caution since the complexity of the living world is such that predictability is not always achievable.

Ethics is trickier. Two members of the House of Lords addressed a meeting on the topic of cloning embryos. Each stated emphatically that their views were based on ethical considerations but one was for and the other against cloning embryos. This book contains a discussion of some of the issues involved. It would have been more lively had there been contributions from those with strong opinions on some of the more polarised positions eg. the Roman Catholic view or the anti-GM lobby. However, I find myself in agreement with conclusions from the carefully argued articles here and I certainly think the book is an excellent guide to the subject, though it would be hard to glean from the civilised tone that there had been an intemperate squabble on Frankenstein foods and cloned monsters.

Genetic engineering is made possible by the observation that all living things are based on very similar genetic mechanisms. Human beings share about a third of their genes with the lettuce – a point I had always suspected on wholly other grounds – and 98% with chimpanzees. DNA technology has developed to a stage that allows precise manipulation of genes and even the precise transfer of specific genes from one organism to another. The project aimed at determining the complete sequence of the human genome has been highly successful though not yet fully completed. We all – except for identical twins – have slightly different (around 0.1%) gene sequences, so the human genome project will simply be a starter to sequencing the genes of every human being. This is of immediate relevance to diseases which are the result of errors or mutations in single genes. However, most genetic diseases involve several gene errors. The situation with these diseases is more complex; they are more difficult to diagnose accurately and it is harder to propose therapy with predictable results. Cancer is a disease of damaged genes which results in a loss of control of cell proliferation. There is little doubt that we need to know a lot more about gene therapy in order to control

most cancers. However, we nearly all agree that the research should be done to achieve that control.

There is a debate about how far it is safe to go and what it means to remain ethical. There is strong advice from researchers that human cloning should not be attempted since we do not know enough about the techniques. Some say we should never attempt human reproductive cloning on ethical grounds but they do condone therapeutic cloning within limits. Some say any kind of human cloning is unacceptable. A tiny minority of scientists say they are already actively trying to clone humans. As the techniques of genetic engineering develop these matters will become more and more pressing. They will become even more acute as the neurosciences develop. This book is a serious contribution to the debate and will help prepare us for the future

[The book is available from: The Librarian, Christ and the Cosmos Initiative, 34 Davenport Road, Witney, Oxon. OX28 6EJ. The price includes UK postage and packing.]

Andrew Miller

John Polkinghorne & Michael Welker

Faith in the Living God: A Dialogue

Minneapolis: Fortress Press, 2001.

151pp. pb. \$16.00. ISBN 0-8006-3434-9

This is a delightful book which I believe will appeal to all levels of readership from college level and beyond because of the skill, care and consideration of the authors.

John Polkinghorne needs no introduction here, but it is important to say that his foundation is in the community of science while his co-author Michael Welker comes from the religious humanities community. I had not personally come across his work before but he is certainly

more than up to the task of dialoguing with the highly experienced writing of John Polkinghorne. They begin the book by looking closely at the things that they share in common and the things that differentiate them. It is refreshing to see two men committed to finding the truth and realistically trying to cut through the lenses with which we all determine what truth might be.

This is not a book watered down with political correctness and writ large in words which mean anything to anyone and nothing at all. Each man clearly paints his own view of the subject matter and allows critical reflection from the other party. It is refreshingly realistic.

The book is a game of two halves, each with three sections. The first half covers Faith in God the Creator, Faith in Christ and Faith in the Holy Spirit. The second half may have been a good excuse for a second book rather than a second half, but it is useful here nonetheless. They write an essay each and then a joint essay of critical reflection on the project. The overall topic of the second half is epistemology in an earthy sense rather than an abstract one, which is a fitting end to a book on personal faith rather than academic theology.

Having sung the book's praises there are weaknesses but they are not critical, in fact they are almost necessary for the book to be successful. This is not an academic study of 'Faith in the Living God' but an account of two men's personal experience and thought, with an opening acknowledgement of subjectivity. I did not enjoy the chapter on the Holy Spirit because of the overbearing nature of orthodoxy which does not appeal to my more charismatic nature but is exactly where Polkinghorne is coming from. And therein lies the beauty of this book. It does not try to cater for a wide audience and make us all happy, it simply tries to present an honest and vigorous dialogue between two brothers in Christ.

It is a lesson to us all, and a very enjoy-

able one at that.

Evan Cockshaw is a Curate in Leigh, Lancashire. He has degrees in Astrophysics and Theology and a keen interest in the interaction between the two.

Arthur Peacocke

Paths From Science Towards God: the End of all our Exploring

Oxford: Oneworld, 2001. 198pp, pb
£10.99. ISBN 1-85168-245-7

The writings of Arthur Peacocke have had a major influence on the science-faith debate ever since the publication of his *Science and the Christian Experiment* (OUP, 1971). The aim of this present book is, in Peacocke's own words, 'to expound how science has opened up fresh vistas on God for human perception and life'. Drawing extensively on his earlier publications, Peacocke here provides the general reader with a broad and updated overview of how, from his perspective, science provides new paths leading to God. The reader may, then, with some justification wish to ask the question: how successful is the author in persuading us that science provides the basis for such a modified theology?

The first two chapters set the scene by examining the contemporary challenge of science to religious beliefs and then exploring the way in which a reasonable 'theology of the future' might emerge by giving rational and scientific ways of thinking more prominence. In these chapters, as in the rest of the book, Peacocke is robustly critical of all those who look to 'authorities', such as the Bible or the Church, to justify their beliefs, suggesting instead a theology more defensible 'in Western culture', a theology built on reason, utilising scientific criteria for credibility.

After this initial skirmish, the remainder of the book divides into two broad themes: Part II (Chapters 3-6) focuses on the world and on God's interaction with

the world, whereas Part III (Chapters 7-11) concentrates more on the attributes of God as Ultimate Reality. There is much valuable material in these chapters. Peacocke emphasises the capacity of the sciences to provide convincing descriptions of all that is in the world, but this position leads him not to a naïve reductionism but to 'emergent monism' (a term preferred over 'non-reductive physicalism') in which the 'higher' properties of the world emerge in hierarchical fashion from its physical structures. The only Dualism is that which exists between God and the world, a world which comprises a 'system-of-systems'. The author adopts a similar position in regard to the 'epic of evolution', seeing the complete process as an unfolding of the activity of God, albeit a 'risky enterprise'.

Peacocke wishes to make a distinction, though a fine one, between God's continuous sustaining action in upholding the physical properties of the universe, and his particular purposes in bringing about his divine will in the world. This raises the difficult and much debated question as to how God's particular will in the world is mediated. Peacocke discusses this question within his own pantheistic framework – the belief that the 'Being of God includes and penetrates all-that-is, so that every part of it exists in God and...that God's being is more than it and is not exhausted by it' (57). The author is critical of the idea that the nexus of God's action with the world is located within those events best described by chaos theory, or at the level of quantum indeterminacy. In a particularly helpful section (108-115) Peacocke suggests that rather than interacting at particular loci to bring about his will within the world, there is a 'top-down' causation in which the personal God interacts with the total system-as-a-whole, thereby causing particular patterns of events to occur which would express his intentions (110).

In many respects the concept of God that the author presents through the lan-

guage of pantheism sounds remarkably like the God of biblical theism: an immanent God who is completely involved in the world that he has made in all its aspects. Indeed, despite his suspicion of the Bible as a 'source of authority', it is remarkable how often Peacocke returns to biblical narratives for insights and the author (perhaps to his own surprise?) finds himself on occasion expounding a 'traditional, indeed biblical, model of God' (115) in which a strong doctrine of immanence is maintained in balance with God's transcendence. The problem for the pantheist is locating a space between theism and pantheism that is distinct from both. Peacocke is clear in his disavowal of pantheism but, to this reviewer at least, his pantheism appears to have many of the qualities of a robust and traditional theism.

Yet not completely. Drawing on process theology, the God that Peacocke presents is one who is considerably limited in his actions when compared with the God of biblical theism. For example, Peacocke adopts the position that God cannot know the future because it is not yet there to know (43-48, 58-59), referring to God's 'self-limited' omniscience (an oxymoron, surely?). Furthermore, God is seen as taking a 'risk' in his creative enterprise – things might have turned out differently, a view rather different from the biblical insistence in Genesis Chapter 1 (for example) that when God speaks things happen as he ordains (albeit by means of the 'epic of evolution').

Paths From Science Towards God wishes to establish 'an open, revisable, explanatory, radical...liberal theology' (133). The author expresses the view that it is the more traditional forms of Christianity, which includes a belief in the biblical miracles, that is alienating 'the educated in Western Europe' from the churches. But secularisation studies from the 1980s and 1990s (in contrast to those of the 1960s) do not support such a thesis. Central city churches located near

universities (in the UK at least) are filled with computer scientists, engineers, physicists, geologists and biochemists. More formally, the American sociologists R. Stark and R. Finke provide convincing data to support the idea that it is the more conservative forms of religion that fills the churches (*Acts of Faith – Explaining the Human Side of Religion*, University of California Press, 2000). It has always been the liberal's dream that a revised and reconstructed version of the Christian faith would provide a 'package' of beliefs more acceptable to the educated western person, thereby leading to a revival of religious belief. However, frustratingly from the liberal's perspective, this does not seem to happen in practice as Stark and Finke point out: when Christian doctrine is moulded according to the latest trend in science or

philosophy, so it seems impoverished in its ability to generate dynamic Christian communities, in due course leading to spiritual decline.

Does *Paths From Science Towards God* in fact identify science as source-material for a reconstituted Christian theology? Not really. What the book does is to expound the classical views of liberal theology, drawing on biblical sources, religious tradition and personal religious experience, in the process relating this theology sensitively and helpfully to contemporary science. For those who wish a broad introduction to 'vintage Peacocke' on the relationship between science and theology, then this is certainly the book to read.

Denis Alexander is Articles Editor of *Science and Christian Belief*.

science/faith publication

Christians and bioethics

edited by Fraser Watts

published by SPCK in 2000; £8 + p&p

From a review by Stuart Lucas (in S&CB, 13, 189):

Of particular merit ... is Derek Burke's discussion of GM food, which should be compulsory reading for frustrated biotechnologists and concerned consumers alike.

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