

Reviews

Celia Deane-Drummond
Christ and Evolution: Wonder and Wisdom

SCM Press, 2009. 300 pp. pb. £30. ISBN 9780 334 042136

Among the many books written to coincide with the 150th anniversary of Darwin's *The Origin of Species*, Deane-Drummond's must surely count as one of the most interesting and unusual Christian explorations of evolution's wider significance. It needed a theologian well-versed in biology to write it. The result is a profound exploration of our animal and human origins, and of the forces that have made us the paradoxical creatures that we are. But it is not a book for the faint-hearted, nor for those who have never speculated about such matters as the relation between human evolution and original sin. It is full of fascinating insights, among them an exploration of possible forms of morality among non-human animals. If true it is a claim that would set the whole process of evolution, both human and animal, within the same moral orbit, and ultimately within the context of Christ's incarnation.

The idea of Christocentric evolution must be anathema to Dawkins, who is quickly dismissed as one whose antipathy to religion so distorts his view of it that he falls into the trap of using Darwinism as an excuse for atheism, despite his own failure to make a convincing case for evolutionary theory's being a legitimate reason for religious scepticism.

Deane-Drummond's revolutionary ideas about non-human animal morality are highly controversial. The main problem is whether such claims about moral awareness can be justified in the apparent absence of any kind of appropriate symbolism or language in animal communication. She herself expresses no doubts about her basic proposition, and in this book has even gone so far as to

speculate about redemption and suffering in the animal world. She also continues to explore the wider theological implications of her ideas about animal morality, and is careful to divorce these from the dubious claims about animal psychology and, at the other end of the scale, from Dawkins's even more dubious claims about the supposed omniscience of his so-called 'selfish replicators'.

As part of this wider view of what is possible among non-human animals, she goes on to explore how and why religions might have evolved. Drawing on the pioneering work of Teilhard de Chardin and Hans Urs von Balthasar, she develops the idea of evolution as a theodrama, within which Christology plays an integral part. At the heart of this involvement lies God's gift of Wisdom, personified and otherwise known under its Greek name Sophia. It is a concept developed from the biblical Wisdom literature, and much elaborated by the Russian Orthodox theologians, Solovyov and Bulgakov, who interpreted it as a form of what might be called 'deep incarnation'. Sophia, we are told, links Christ, not just with humanity, but with the whole evolving cosmos, as he shares in the cosmic suffering, and opens the way to cosmic transformation. Sophia also has the advantage of being a divine feminine principle, but I must admit to some doubts about an abstract concept being personified in this way, despite the biblical precedent for doing so.

In our present state of development the wonders of evolution, and God's presence and purposes within it, can only be seen in retrospect. There is a proper humility which we human beings should exercise as we learn to understand our history in its relationship to Christ's self-offering. Are we likely to evolve any further? The book ends with a warning. Our dependence on ever increasing technological wizardry points in the direction of what

Deane-Drummond calls 'transhumanism', the triumph of intelligence over humanity, and a disastrous failure of wonder and wisdom.

This is a rich and complex book, somewhat dazzling in its claims, impossible to summarise adequately in a few sentences, and revolutionary in its implications, both for our own self-understanding and for knowing our proper place in God's world.

John Habgood, a former physiologist, was Archbishop of York until his retirement in 1995.

Richard J. Blackwell

Behind the Scenes at Galileo's Trial

Notre Dame: University of Notre Dame Press, 2006. 245 pp. pb. 35.50. ISBN 978-0-268-02210-5

The sentence passed on Galileo by the Holy Office in 1633 specified two reasons for finding him 'vehemently suspect of heresy', first, that he had 'held and believed a doctrine which is false and contrary to Holy Scripture' [that the earth is in motion and the sun at rest] and second, that one 'may hold and defend as probable an opinion after it has been declared and defined to be contrary to Holy Scripture'. Galileo had indeed defended that doctrine as probable. But, inevitably, two questions would arise for many on hearing the news: Are the Copernican claims really contrary to Scripture? Does defending them really entail suspicion of heresy? One of those who had been most active in the prosecution, Melchior Inchofer SJ, took it upon himself to compose a detailed defence of the trial verdict, *Tractatus Syllepticus*, in which, unsurprisingly, his response to both questions was a confident affirmative.

Readers concerned with the Galileo affair once again owe Richard Blackwell their thanks for making a relevant but relatively little known text available in English translation, as well as a couple of

shorter texts relevant to the reaction of Christopher Scheiner SJ, a leading astronomer of the day, to the affair. The importance of the Inchofer document is that it gives some idea of the arguments behind the scenes that led the theologians of the Holy Office to two fateful decisions, first in 1616 declaring the Copernican claims to be contrary to Scripture, and then again in 1633 condemning Galileo for defending them.

Inchofer was aware, as the judges in 1616 had almost certainly not been, of the trenchant arguments Galileo had marshalled from Augustine and other Fathers of the Church in his now-famous *Letter to the Grand Duchess* against making use of Scripture to decide astronomical disputes. Inchofer concedes that the Fathers presupposed that the earth is at rest rather than investigating the issue explicitly (120). Nevertheless, he diligently combs the ancient works for scores of references to the earth's immobility and the sun's motion, and presents them as cumulatively establishing, not only both claims, but even as showing them to be a matter of faith: to question their literal character would call the integrity of Scripture itself into question. As for Galileo's argument in the *Dialogue* for the unperceived character of shared motion, Inchofer is unimpressed: 'we on earth have absolutely none of the experiences which would occur on a moving ship' (176).

In retrospect, Inchofer's text makes clear that what primarily shaped the opposition to the Copernican claims was a decided turn to literalism and hostility to novel interpretation on the part of Catholic theologians in regard to the Bible and the authority of the Fathers. This was a direct consequence of the Reformation challenge and even more particularly of the decrees of the Council of Trent. This was what led the theologians to disregard Galileo's strongest argument: the accepted theological principle that the Scriptures were accommodated to the capacity of their hearers:

'There are those who think that these words [regarding the sun's motion and the earth's immobility] are asserted only according to appearances.... But these people speak rashly and...[interpret] Scripture against the opinions of all the Holy Fathers.... If speaking in this way were permitted, the literal meaning of Scripture will vacillate... and faith in the things we hope for will be overcome.' (117)

In a separate chapter Blackwell speculates that Scheiner was too good an astronomer not to have seen the advantages of the Copernican model but that his Jesuit vow of obedience may have constrained him from speaking out in its favour. This, he thinks, might help to explain the rather extraordinary venom Galileo displayed in Scheiner's regard: he could have regarded him as lacking in intellectual integrity (84). One further chapter recalls a curious episode in Galileo's trial when the prosecutor seems to have privately offered Galileo some sort of incentive in an effort to elicit from him admission of his guilt. Blackwell takes it that the incentive was a lenient trial-verdict. Since that was not in fact forthcoming, Blackwell speaks strongly about 'perfidy' and argues furthermore that Galileo's confession in response to the incentive was what ultimately convicted him (26).

I would respectfully disagree. First, Galileo did not, in fact, confess, indeed was adamant, to the evident discomfort of the prosecutor, in maintaining to the end that he had not, as charged, claimed to demonstrate the truth of the Copernican world-view. Secondly, the function of the prosecutor was not to determine Galileo's guilt: that was already assumed from the beginning. Eliciting a confession was simply part of the standard inquisitorial procedure. There were, indeed, irregularities in the conduct of the trial (to which great quantities of ink have been devoted!). But Galileo was convicted, not by any supposed confession on his part but because he had (in fact) defended a doctrine that had earlier

(mistakenly) been declared to be contrary to Scripture and because that offence itself in the course of the trial had (also mistakenly) been construed as raising suspicion of heresy.

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Philip Clayton & Paul Davies (eds.)
The Re-Emergence of Emergence: The Emergentist Hypothesis from Science to Religion

Oxford: Oxford University Press,
2006.330pp. pb. £23.00. ISBN 978-0-19-954431-8

Philip Clayton is to be praised for the effort he has expended in recent years in rehabilitating the concept of emergence for discussions in the field of science and religion and this book is a valuable addition to the growing body of literature on the topic. As he notes in his helpful introductory chapter on the 'Conceptual Foundations of Emergence Theory', 'discussion of emergence has grown out of the successes and failures of the scientific quest for reduction' (1). In fact, *emergentism* is the polar opposite of *reductionism*, or the claim that all phenomena in the natural world can be explained in terms of the fundamental objects and laws of physics. In spite of the various forms emergentism can take (the central distinction between 'weak' and 'strong' emergentism re-occurs throughout the book), common to all versions of the emergentist hypothesis is the conviction that reductionist nothing-buttery is inadequate when confronted with the need to account for the bewildering complexity of the world as we encounter it.

It comes as no surprise then to find Clayton able to trace the 'pre-history' of philosophical emergentism all the way back to Aristotle, via Whitehead, Hegel and Plotinus in particular. However, as Clayton's co-editor, the physicist Paul Davies makes clear, the philosophical

coherence of the emergentist hypothesis is one thing; its acceptance by the scientific community is quite another. For that to happen, as he puts it 'something has to give within existing theory' (xii). This book is a brave attempt to make the case for that dramatic paradigm shift by assembling a series of arguments from an impressive range of leading scholars in favour of the emergentist hypothesis from within the physical and biological sciences. Each chapter would need to be assessed on its own merits, but the cumulative effect is surely significant and makes an important contribution to the ongoing debate.

In keeping with its own emergentist agenda, the book moves from discussions of emergence in physics and biology to its role in the philosophical enterprise of attempting to solve what Jaegwon Kim calls the 'mystery' of consciousness; or in T. H. Huxley's words how 'anything so remarkable as a state of consciousness comes about as a result of irritating nervous tissue' (191). This is more familiar ground for theorists of emergence and the essays in this section, whilst interesting and mercifully readable accounts of the central issues, add little to the wider discussion in philosophy of mind.

The final section completes the picture with three chapters considering, in Niels Henrik Gregersen's terms, 'what is at stake for religious reflection' in the emergentist hypothesis. Here the late Arthur Peacocke, and Gregersen and Clayton, contribute significant essays that help not only to clarify the issues that emergence raises for religious thinkers but also to sketch out in a preliminary form the ways in which an acceptance of emergentism could transform traditional theistic accounts in favour of simultaneously more dynamic conceptions of God and his interaction with the world and a greater caution against 'any knowledge claims that imply, however tacitly, that the knower stands above the march of history and has direct and immediate access to timeless truths' (320).

Overall, this book is a model example of the constructive engagement between science and religion mediated by philosophy and manages to bring the different disciplines into meaningful dialogue without any of them having to set aside their individuality. It makes a strong case for the importance of the emergentist hypothesis in science, philosophy and theology and will be an invaluable resource for students and scholars alike. At the same time, certain questions remain unexplored: how pervasive is the 'turn to emergentism' across the different sciences? What best accounts for its alleged 're-emergence'? How similar is the concept of emergence and its application in the different disciplines? Can emergence ever be more than an analogy in religious reflection? Clearly, much more work remains to be done to address these and other questions before Clayton's sketch of a 'general theory of emergence' (308) can be developed any further, but this book represents a fine initial essay.

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Ian Hore-Lacy

Responsible Dominion: A Christian Approach to Sustainable Development

Vancouver: Regent College Publishing, 2006. 170pp. pb. £10. ISBN 1-57383-342-8

The first part sets out clearly and systematically familiar arguments concerning Christian teaching on stewardship and care for the planet. It outlines the dangers of a purely romanticist view of the created order and its historical origins, the contributions of scientists who investigate and interpret the unimaginable but accountable origins of the universe, and the current distress caused by those in denial who still hold to a six-day creation.

The use of land, its resources and fruitfulness, the place of wilderness in our lives are all helpfully described, and the author does not shy away from modern controversies that emerge with technologies such as genetically-modified crops and their role in more developed and less developed nations. His analysis comes down on the side of such advances within the context of sustainable development provided they do not conflict with care of the environment and the needs of disadvantaged communities.

The narrative moves from one disputed area to another as it reaches a climax that reflects the author's particular experience, namely the nuclear debate. The arguments in favour of nuclear energy are described (though fusion hardly) and are seen to support sustainable development. The world has an insatiable appetite for energy as more and more people legitimately adopt a lifestyle once the preserve of more developed nations. The discussion concerns not only the secure supply of energy (and the safe disposal of nuclear waste) but the management of waste in all its forms, much of which we currently discharge into the environments of the Second and Third World where it creates employment, materials for re-use, and hazards.

The finale of the book seeks to analyse, albeit briefly, the discord that can arise from those with a deep-seated distrust of technological 'fixes', those who think the non-governmental environmental movement has exaggerated its case through self-serving interests, and those who believe God is sovereign and all will be well. The author is to be applauded because he refrains from naïve 'one-liners' aimed to answer complex issues. His account should stimulate more members of the Christian community, people of other faiths, and those of no faith to wrestle with some of these very modern issues that will not go away.

It is encouraging that increasing numbers of Christians and churches show signs of putting their toe into the turbu-

lent waters of debate surrounding sustainable development. The subject is wide-ranging and this book provides helpful insights and pointers for further study. It is less strong on governmental work and socio-political arguments that seek to raise awareness about the challenges we all face and the policies and regulations that will be required to turn stewardship beyond words and into action.

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Ronald L. Numbers (editor)
Galileo Goes to Jail and Other Myths about Science and Religion

Cambridge, Massachusetts: Harvard University Press, 2009. 302 pp. hb. £20.95. ISBN 978-0-674-03327-6

Not many books on science and religion offer such an enjoyable experience to the reader as this collection of twenty-five essays, each written by a historian of science. Each short and incisively argued essay challenges a prevalent 'myth' – in the sense of a false claim – concerning the interrelationship between science and religion. Thus one chapter seeks to demolish the view that Thomas Henry Huxley defeated Bishop Wilberforce at the 1860 meeting of the British Association, while another contests the claim that Christianity gave rise to modern science, and a third shows that Descartes did not hold the mind-body distinction often attributed to him.

What is refreshing about these essays is not only that their authors use history critically in order to challenge the reader's assumptions, but in offering correctives they often illuminate less prominent but important aspects of history. For example, in arguing that Galileo was neither sent to jail nor suffered torture at the hands of the Inquisition, Maurice

Finocchiaro argues that the official documents that appear to specify these punishments should not be taken at face value. Instead, he draws on contemporary correspondence to show that Galileo was not tortured and that, instead of being imprisoned, he was placed under house arrest in 1638.

In refuting the myths that have accumulated round the subject of science and religion, several of the authors address the reasons why such myths were first devised and why they subsequently gained popularity. They demonstrate that these myths were self-servingly deployed by groups with strong commitments to specific scientific or religious positions. For example, in seeking to undermine the theory of evolution, its opponents have repeatedly argued that it is based on a circular argument; creationists claim that evolution is used to interpret the fossils in the stratigraphical column, an interpretation which is then utilised as evidence for evolution. However, Nicolaas Rupke argues that the stratigraphic sequence pre-dates Darwin's theory by two or three decades and therefore does not depend on evolution. Likewise, Richard Dawkins has been a major proponent of the myth that science has been principally responsible for secularisation. In response to this charge John Hedley Brooke makes the strong case for science playing only a minor role in secularisation, arguing that other factors have been far more influential, including both radical politics and people's disillusionment with religion itself.

The myths addressed in this book differ considerably one from another in type and importance. Some are major misconceptions that have profoundly affected people's perceptions of both science and religion. Thus the view that science is the main cause of secularisation and the assertion that medieval Islam was inhospitable to science must both be forcefully challenged if we are to avoid misunderstanding the very contours of science-religion interrelations. By contrast, the

myth that Einstein believed in a personal God seems relatively unimportant. Moreover, as I had not previously encountered this particular assertion, it may be a 'straw myth'. Perhaps rather surprisingly, the frequently repeated claim that science and religion are themselves in necessary conflict – the so-called 'conflict thesis' – is not directly addressed in this volume.

The volume as a whole shows just how insidious are the myths that have been deployed to justify and popularise the views of creationists and the proponents of Intelligent Design on the one hand, and anti-religious secularists on the other. However, I have some residual fears that the authors of one or two of the chapters were in danger of replacing hackneyed myths with their own more sophisticated mythology. Despite that concern, Ron Numbers and his team of contributors are to be thanked for a stimulating book that deserves to be widely read.

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Alister E. McGrath

A Fine-Tuned Universe: The Quest for God in Science and Theology

Louisville, Kentucky: Westminster John Knox Press, 2009. xv+262 pp. hb. £26.99. ISBN-13 978-0-664-23310-5

This volume, the published version of McGrath's 2009 Gifford Lectures, comprises two parts. In the first, McGrath outlines his by now familiar vision for a renewed, Trinitarian natural theology, and in the second he focuses on examples of fine-tuning in the universe and their interpretation.

McGrath's approach to natural theology here, as in his earlier books, is to locate it firmly within dogmatic, orthodox Trinitarian theology. This provides, he

argues, a theory-laden account of the so-called ‘anthropic phenomena’ in cosmology and elsewhere. It should be recognised, however, that this is not the traditional view, which sees natural theology as discerning something about God from nature apart from revelation. For McGrath natural theology tells us something about the God who is already known as Trinity. McGrath’s approach clearly owes much to Thomas Torrance, whose biographer McGrath is; Torrance in turn was of course heavily influenced by Karl Barth.

One reason McGrath advances for this approach is that nature is a socially constructed notion (6), making natural theology situation-specific rather than universal. Certainly the ambiguities of nature, and the way nature is perceived, need to be handled with care in any natural theology. A less cogent reason for abandoning traditional natural theology is that ‘There is no compelling reason to defend a modernist vision of natural theology in a postmodern culture’ (14). That may be so if one is a postmodernist sympathiser, but, as McGrath well knows, most scientists reject postmodernism, and for very good reason – they see their discipline as saying something true about the real world. Postmodernism will cut no ice with hard-nosed atheists like Richard Dawkins.

McGrath is, however, somewhat ambivalent in his approach. If natural theology ‘can play an important apologetic role... in providing a navigable channel from human interest in the beauty of nature or the notion of the “transcendent” to the “God and Father of our Lord Jesus Christ”’ (28), then it does sound more like the traditional version. More significantly McGrath adopts from secular philosophy the notion of ‘inference to the best explanation’. The criteria for making this inference, such as economy, elegance and explanatory power, seem to be universal rational criteria, rendering McGrath’s approach indistinguishable from a traditional natural the-

ology which argues that theistic belief provides the best account of what we see in nature, an approach renewed in the work of Richard Swinburne, for example. McGrath acknowledges that self-evidencing explanation, whereby hypothesis A explains evidence B and B justifies A, is perfectly valid (52-53). That is certainly correct, though surely B should then justify A for any rational enquirer.

A significant theological resource for McGrath is St Augustine’s work *De Genesis ad Litteram*, and in particular Augustine’s notion of *rationes seminales* (101-106), seedlike principles embedded in the initial creation and giving the potential for subsequent development. McGrath utilises this concept in Part 2 of the book, where he explores the particularities of fine-tuning, having prepared the way earlier with a chapter on counterfactuals as related to anthropic thinking (83-93).

McGrath gives a standard but clear account of the cosmological fine-tunings (111-126). He is, however, constrained by his own version of natural theology in not turning it into a full-blooded apologetic argument, though the ambivalence I have noted above is there too. In fact McGrath prefers to talk of the fine-tunings as ‘resonant’ with the Christian vision of God (cf. John Polkinghorne’s preferred term, ‘consonant’).

In subsequent chapters McGrath also gives very helpful examples of other kinds of anthropic properties, from the biological and chemical sciences, the latter bringing in his own scientific training. Thus he notes Darwinian evolution’s reliance on the pre-existing chemical conditions for life to exist in the first place; the intriguingly unique properties of water; the constraints imposed on evolution by chemical catalysts; the origins of complexity and the capacity, as Charles Kingsley put it, for things ‘to make themselves’; and the directionality/teleology of evolution, including insights from Conway Morris’s notion of ‘convergence’.

All this is consistent with Augustine's *rationes seminales*, and moreover, it all leads back to the fundamental cosmological conditions required for an interesting universe to develop in the first place. Although McGrath reiterates his position, citing Newman, that he sees design because he believes in God and not the other way round, once again it seems to me that all these anthropic properties could be harnessed into a more traditional kind of natural theological argument.

McGrath concludes with a chapter on 'emergent creation' and natural theology. In summary he regards primordial creation and emergent potentiality now seen in the modern discourse as nascent in Augustine and a legitimate and necessary expansion of traditional Christian notions of creation, rather than their subversion (216).

McGrath is open about seeing Trinitarianism as a theory-laden way of viewing, and hence interpreting, nature, and his purpose is not to defend it but to explore its explanatory possibilities, particularly its capacity for 'colligation' (the connecting and unifying of facts – the term is taken from William Whewell). Although it is not always made clear how this specifically Trinitarian vision is necessary for McGrath's purpose, I do agree that a hypothesis which explains and brings together a diverse set of facts finds support from those facts. Unlike McGrath I see natural theology as then going the other way, from nature to God, and the argument being formalised in terms of Bayesian confirmation theory.

Although I have given some (I hope constructive) criticisms, this volume, along with McGrath's other books on this topic in recent years, represents a highly significant contribution to the ongoing dialogue between science and Christian theology, and is essential reading for all who wish to engage in that dialogue at a serious academic level.

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F. LeRon Shults
Christology and Science

Aldershot: Ashgate, 2008. 196 pp. pb.
£16.99. ISBN 0-754-65231-9

Despite the vast number of books on science and religion there remains a shortage of good studies of the detailed interaction between doctrine and the findings of modern science. Shults's book should be warmly welcomed as an attempt to fill this gap: how can we describe what God was doing in Christ?

Each generation must re-imagine the truths of the central doctrines of Christianity for itself, if only to affirm that traditional formulations retain their power in new contexts. This is especially obvious when Christianity is confronted with new philosophies or cultures. The early expansion into the Greek intellectual sphere, and Anselm's reconceptualisation of the old metaphors taken from Roman law to explain the atonement for his feudal society, were perhaps equally important. That Anselm was followed in turn by the Calvinists and their development of the legal picture into a theory of penal substitution shows both the malleability of doctrine and, for some including Shults, the dangers when metaphors outlive the society in which they were first shaped. The scientific revolution provides our own reference point, and it gives a particularly difficult example as the relationship between science and philosophy has never been quite clear. Can science be understood in terms of one particular philosophy, or does it in some way rise beyond all philosophical systems and judge them in turn?

Shults is clear that such issues should be the central concern of Christian doctrine in the scientific age. He stands with those who believe that science can, and must, be mediated to a general population via the craft of philosophy, and he seems to have no hesitation concerning

the adequacy of the translation. So his three central chapters bring three great Christian doctrines – Incarnation, Atonement and Eschatology – into dialogue with science, using respectively evolutionary biology, anthropology and cosmology as conversation partners.

Each main chapter begins by discussing a shared interest – something Shults claims as common to all humanity: how we know; how we act; how we are. He then bluntly enumerates the difficulties which a religious view faces in the light of modern understanding. Shults is aware that organising the difficulties in pairs, as he does, is somewhat artificial and repetitive (he discusses ‘Sameness and Difference’ in the chapter on Incarnation and Evolutionary Biology and ‘Us and Them’ in Atonement and Cultural Anthropology). In general, however, the method serves him well and allows many of the key disputes to be well aired. After discussing the work of carefully selected theologians, Shults concludes each chapter with a summary giving suggestions for the reconstruction of Christology. There is much here which is full of insight, and the summaries of contemporary thinkers are models of concision and useful critique.

It will be obvious that this is a worthwhile book. My hesitation lies in whether the author has in fact delivered quite what was promised. It is highly significant that the central section of each chapter is called ‘Philosophical Challenges’. Shults does engage with scientific difficulties, most helpfully and directly over the questions evolutionary biology raises about traditional understanding of the identity of Jesus Christ. His real focus, however, is on problems raised by late modernity, and its preferred ways of doing philosophy, rather than on purely scientific questions. Shults is greatly concerned with the conceptual space in which we live. As a late modern, I simply cannot think the way in which my predecessors did, so my understanding of doctrine will inevitably be

different. Shults is helpful and sharp here. But this insight is not especially dependent on scientific understandings. The key concerns which Shults raises – and they are real problems – ultimately derive from modern philosophy rather than science. Too often in the course of the study I found myself engaging with the traditional liberal-orthodox debate rather than any *scientific* issue. So Shults provides a thought-provoking study, if not quite the work promised by the title.

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John F. Haught

God and the New Atheism: A Critical Response to Dawkins, Harris and Hitchens

London: Westminster John Knox Press, 2008. 124 pp. pb. £9.99. ISBN 0-664-23304-X

John Haught’s latest book is, in many respects, a succinct summary of his previous work *Is Nature Enough?* in which he develops a scientifically informed theology in response to scientific naturalism. *God and the new atheism* utilises many of Haught’s previously established arguments and targets them directly against what Haught calls the ‘new atheism’ (primarily the thought of Richard Dawkins, Sam Harris and Christopher Hitchens), a stance defined by its commitment to ‘scientism’ – a belief in the all-encompassing explanatory power of science. The book aims to demonstrate that the new atheists under discussion have an over simplistic account of religious belief, are theologically unsophisticated and that their position is essentially self-defeating. The result of this assault on atheism is a reconception of the science/theology conversation, with an indispensable role posited for theology for the very possibility of human understanding.

By exposing the metaphysical assumptions of a purely empirical scientific method (primarily in the first three chapters), Haught offers a valuable critique of scientism, and he carefully manages to avoid any caricaturing of the position. An atheist like Harris cannot assume that it is morally wrong to believe something without evidence and there can be no such thing as a science that only accepts claims that can be verified in principle by 'objective' scientific knowledge. This is because even scientism rests on the faith that knowledge can be had and that truth can be known: 'We have to trust that the universe makes some kind of sense before we can even begin the search for its intelligibility' (6). Science and theology are therefore not opposed – quite the contrary – because 'faith [in the sense of the belief that truth is worth seeking], and not in the sense of wild imaginings and wishful thinking, lies at the root of all authentic religion – and science' (47). Haught very quickly realises the importance of ethical value here, and it is an issue that pervades the argument of the book from beginning to end, providing some of its strongest argumentation. The new atheists cannot escape their commitment to the reality of ethical value; they insist that knowledge itself is 'good', the demand for evidence is a 'moral' imperative, while the 'evils' that are wrought by religion are wrong. How can a purely naturalist Darwinian, Haught asks, take moral values as absolutely binding? How can values be anything other than arbitrary, conventional, historically limited human concoctions? (26) The randomness of natural selection, he suggests, cannot account for the absoluteness that the new atheists attribute to the values that justify their intolerance of religious faith. These opening chapters of the book also take time to draw out the implications of an ignorance of biblical criticism: the bible is treated like a scientific textbook by both the new atheists and creationists. The discussion is driven by a desire to expose the unfair lampooning of religion accepted by those

scientists who suppose creationists to speak for all theologians, and Haught's fierce criticism of the new atheists for their ignorance of biblical criticism is not without justification.

The remaining five chapters of the book are more constructive in content, proposing a theology to overcome the new atheists' challenge. Our inclination to trust our intuition that the world is intelligible, he says, shows that theology is not the answer to scientific questions: rather it responds to the questions of whether the trust we place in any inquiry, including science, is justifiable (48). Theology can provide a good answer as to why we trust our minds: because prior to any process of reasoning or empirical inquiry, we are already encompassed by infinite Being, Meaning, Trust, Goodness and Beauty (50). There is a largely unacknowledged ontological argument here that would be well worth developing further. The book then takes a more speculative turn in its proposal that a personal Christian theism is a more satisfying account of knowledge and truth. Subjectivity and personhood (largely ignored by 'scientism') leads Haught to an understanding of a personal God (Chapter 7), while Christianity's emphasis on embodiment (through the incarnation) makes God intimately related to the world enabling the ultimate 'divinization' of the world (Chapter 8).

It is these more speculative theological sections of the book that need expanding. The chapter dealing with God as personal is underdeveloped and says little about how the mechanism of God's influence might work, while Haught's theodicy is thin. He suggests there would be no life, freedom, future, grand cosmic story nor would there be opportunity for each of us to develop character and virtue without evil, but his discussion fails to satisfy the challenges raised by animal suffering or the supposed 'evils' of even offering a theodicy in the first place. These limitations are unsurprising in such a short work and it means that although the book should be highly rec-

commended to students and those wishing to gain an introductory grasp of a theologically sophisticated Christian response to the new atheism, theologians already working in this field will be left wishing for more.

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Denis O. Lamoureux

Evolutionary Creation: A Christian Approach to Evolution

Eugene, OR: Wipf & Stock, 2008. 493 pp. pb. \$55.00. ISBN 978-1-55635-581-3

Soon after the publication of Denis Alexander's book *Creation or Evolution: do we have to choose?* there was a long debate on the Christians in Science e-mail list on the theological adequacy of the 'Theistic Evolutionary' position. A number of people pointed out that Alexander's position had both historical and theological precedence; however no one was able to reference an easy-to-read, up-to-date, review written by a theologian describing the current state of the debate. This hole in the literature is firmly plugged with Lamoureux's extensive scientific and theological review, which although more comprehensive than Alexander's book, is still written for the layperson. With doctorates in dentistry, theology and evolutionary biology, Lamoureux calls himself a conservative Christian with a 'life calling' (386) to address the origins issue, a calling he is able to put into practice as Professor of Science and Religion at St Joseph's College, University of Alberta.

The book can be split into four sections, with the first three chapters dealing primarily with definitions as a foundation for later arguments. Most noticeably Lamoureux rejects the term 'theistic evolution' on the basis that this word arrangement 'makes the Creator secondary as only the qualifying adjective' (30) and instead favours the phrase 'Evolutionary Creation'. He also redefines the

term 'intelligent design' to mean 'natural revelation authored by the Creator' (31), something he sees as entirely compatible with the Evolutionary Creationist position. To do this he has to re-label the 'Intelligent Design' community as 'Progressive Creationists', a strategy that he justifies well, but unfortunately makes the text feel a bit awkward in places, especially as the terms 'Old Earth Creationism' or 'Day-age Creationism' are perhaps more common in much of the rest of the literature. He retains the 'Young Earth Creationist' label and, in a helpful table on pages 44 & 45, spells out these three positions along with two others: 'deistic evolution' and 'dysteleological evolution'. This allows him clearly to reject the 'simplistic conflict vs. concord' dichotomy in favour of a nuanced approach to the origins debate (33), although he does accept the more refined teleological versus dysteleological dichotomy. Perhaps the most useful discussion in this section is Lamoureux's definition of three types of concordism adopted by Christians regarding Genesis 1-11: Theological, Scientific and Historical. By separating concordism into these categories he is able to discuss the idea of ancient understanding in both science and history without compromising theological truth contained within the same text. He stresses the difference between the 'incidental' details of the text and the central 'message' of the text and expands this idea comprehensively in Chapters 4, 5 and 6 with strong evidence and reasoning for rejecting both scientific and historical concordism in Genesis 1-11.

Chapter 7 is a comprehensive review entitled 'Genesis 1-11 and History: Beyond Conflict and Concordism'. The chapter includes sections entitled 'Historiography, Ancient Motifs and Divine Inspiration' and 'Were Adam and Noah Historical?' It is this chapter that the reviewer wishes he had at hand during his debate on the CiS email list as it seems specifically written to address concerns held by many, especially within the conservative Christian community. This

is followed by a chapter entitled 'A Christian approach to human evolution' where Lamoureux makes some insightful comments about teleology and the manifestation of God in the world, again seemingly aimed at answering specific concerns about evolution raised by Christians. The final two chapters take on a more personal feel with a testimony describing Lamoureux's own journey from Young Earth Creationist to Evolutionary Creationist, and some final thoughts and reflections. There are ten appendices, extensive footnotes and a glossary, and a slightly limited subject index. The book is illustrated with numerous black and white figures and tables, although these are not always of value to the text.

Evolutionary Creation has the feel of a life's worth of reflections and battling with the issue of origins. Lamoureux's personal story in chapter 9 felt a bit like a watershed and helped put much of the rest of the book into perspective, but probably could have been included slightly earlier in the text to help give a context for the sheer comprehensiveness of some of the initial chapters. Much like Alexander's book, *Evolutionary Creation* is aimed directly at those in the Christian community who might reject evolution for theological reasons. Although there is little new in his arguments, this text does represent an extensive collection of thoughts that supplements Alexander's shorter volume well. As such it represents a useful and timely resource that should be recommended reading, certainly among students, and definitely among all those interested in the origins debate.

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David G. Myers

A Friendly Letter to Sceptics and Atheists – Musings on Why God is Good and Faith isn't Evil

San Francisco: Jossey-Bass, 2008.
viii+152pp. hb. £9.99. ISBN 978-0-470-29027-9

This is another among the rash of books that has recently appeared in answer to the challenge to religious belief by the strident atheists Dawkins, Harris and Hitchens. Given the positive endorsement on the book jacket by many notable figures – for example, Francis Collins, Alister McGrath, Owen Gingerich – I was expecting Myers' book to be an excellent read. The approach taken is irenic, agreeing with some of the valid criticisms that atheists aim at religion (for example, the chapter 'Mea Culpa'), while also offering a gracious rebuttal of many of the rhetorically engaging but unsubstantiated statements that litter the books of Dawkins (*The God Delusion*), Harris (*Letter to a Christian Nation*) and Hitchens (*God is not Great: How Religion Poisons Everything*). Myers' focus on reasoned argument is good as is his willingness to be open to arguments from the opponents of religious belief.

The book is definitely aimed at a US audience, so aspects of the discussion and the style of writing are probably less relevant and less appealing to a UK reader. For example, the letter format is somewhat artificial and seems at times a little patronising in tone. The content of the book is uneven, with some topics treated in more depth than others – chapters vary in length from three to twenty pages. Furthermore, Myers is clearly more comfortable in dealing with psychological and sociological arguments, which is unsurprising given his background in psychological science.

The best-argued chapters are those that deal with 'Godliness and Goodliness', 'Happy Faith-Heads' and 'Healthy Faith-Heads'. These concentrate on the societal and individual benefits of religious belief that have been established by research in these fields (the detailed

references being given in the notes at the end of the book). Here Myers shows how positive virtues (forgiveness, gratitude, compassion) and practices (volunteerism, charitable giving, moral behaviours) are associated with religious belief. Furthermore, happiness and health are positively correlated with religious belief; for example, in the USA 'as a predictor of health and longevity, religious involvement rivals nonsmoking and exercise' (p.119). Of course, most of the statistics come from North American studies and could easily be critiqued as unrepresentative of the majority of religious believers, who live in the poorer parts of the world.

My major problem with the book is the lack of biblical depth and its dismissal of traditional Christian teaching. Leviticus is characterised as listing 'nasty practices' (p.15) and the chapter 'God and gays' is supportive of gay marriage. Although I agree that 'religion-justified homophobia and racial and gender prejudice' (p.74) are not acceptable, it takes a large leap and rather superficial approach to the biblical text to move to a position that supports gay marriage. As with many writers on this topic, Myers fails to distinguish between homosexual orientation and homosexual practice. While the Bible does not discuss sexual orientation (as Myers notes, 'a modern concept' p.76), it does see sex as being expressed between a man and a woman in a marriage relationship and nowhere else. (For a comprehensive view of the biblical material on homosexuality see Robert Gagnon 2001 *The Bible and Homosexual Practice: Texts and Hermeneutics*, Abingdon Press, Nashville, 520pp.)

Overall, I found the book an uneven read and, although it contains useful material in rebuttal of some of the atheists' rhetoric against religion, I would not personally give or recommend it to any of my own sceptical or atheist friends. This is because the message that it sends about the biblical aspects of my faith is

not one that I would wish to be associated with.

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David N. Livingstone

Adam's Ancestors: Race, Religion and the Politics of Human Origins

Baltimore: The Johns Hopkins University Press, 2008. 301 pp. hb. £23.50. ISBN 978-0-8018-8813-7

Professor Livingstone will already be well known to many readers of this journal. In his latest book he offers us a fascinating history of an obscure view of human origins: pre-adamism. Now confined to the margins of religious conservatism, it was once part of mainstream intellectual thought, and before that it had its roots in a sceptical perspective on the biblical account of human origins.

In eight chapters, Livingstone traces the idea from obscure roots, through its heyday in the eighteenth and nineteenth centuries and back into obscurity. This structure is at once both chronological and thematic as he traces the transformation of the idea through its historical trajectory.

Although he sees tantalising glimpses of the idea in writings prior to the seventeenth century, he identifies its first clear exposition in the work of the seventeenth-century author Isaac La Peyrère. Impressed by the diversity of humankind revealed by early ethnology, and particularly his own studies of Greenland, La Peyrère sought to explain this by postulating the existence of human beings long before the time of Adam. His inevitable denunciation as a heretic doubtless played a part in his pre-adamism becoming part of the armoury of seventeenth- and eighteenth-century scepticism in its assault on biblical orthodoxy.

By Chapter 3 Livingstone is ready to trace the first of the transformations in the fortunes of pre-adamism: the politici-

sation of human origins in the eighteenth century. If as early pre-adamism suggested, there are distinct human races only one of which is adamic and therefore blessed by God, it is but a short step to using it as a justification of imperialism in general and the institution of slavery in particular (since the dominion of the adamic race clearly extends to a paternalistic position vis-à-vis the 'lesser' races).

Move on another century and the idea has undergone further transformations. It saw increasing use as a strategy for reconciling science and religion. But at the very same time that it was becoming established in orthodox Christian apologetics, a more secular version was playing an important role in the emerging sciences of anthropology and ethnology.

With the advent of Darwinism, the idea underwent yet another transformation. This time it was pressed into service as a theological device for reconciling the new science of evolutionary biology with the biblical view of human origins. In the process it cast off its polygenist roots and embraced a staunch monogenism – the human race is one in origin but that origin is now pushed back into the deep past of evolutionary prehistory.

But even as pre-adamism was evolving from polygenism to monogenism, a parallel development was exploiting its racist potential to the full. Chapter 7 explores the role of pre-adamism in the developing politics of racial supremacy.

In Chapter 8, Livingstone explores continuing traces of pre-adamism in twentieth-century thought. Specifically, he identifies three contrasting uses of the idea. It plays a part in some anti-evolutionary apologetics. More importantly, it is still used by both evangelicals and Catholics as a device for harmonising evolutionary biology with a (relatively) conservative reading of the Bible. But, as he points out in his conclusion, such harmonising strategies have a tendency to transform the very things they seek to

unite. On a more disturbing note, the third contemporary use of pre-adamism is its continued deployment to justify the vicious racism of extremist groups like Christian Identity and Aryan Nation. However, Livingstone reminds us that this racism results from a rereading of pre-adamism in a particular social setting rather than being inherent in the idea itself.

In conclusion, this is a well-written and thought-provoking study of an interesting and unjustly neglected strand in the history of the relationship between science and religion.

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James Le Fanu

Why Us? How Science Rediscovered the Mystery of Ourselves

London: Harper Press, 2009. 303pp. hb. £18.99. ISBN 9780007120277

As medic, writer and journalist, this author is tired of the attempts by scientists to extrapolate their science into theories of everything, and is critical of the arch-reductionists who promote scientific understandings of the world. He also counters the triumphalist tone of science with the data of history, pointing to the extrapolations of Darwinism into racism and eugenics, indeed horrendous examples of the way in which science can be abused for ideological purposes.

The book is broadly divided into two halves, the first half focusing on evolutionary biology and the second half on the neurosciences and the question of mind. Much of the science is well described and this book is certainly no diatribe against science itself. On the other hand, the author's unhappiness with the scientific interpretations of science does spill over into a negative stance towards some of it, for unneces-

sary reasons in the opinion of this reviewer. In this respect the book is somewhat reminiscent of a similar book by another journalist, Brian Appleyard (*Understanding the Present*, 1992), who likewise failed to distinguish carefully enough between science and scientism, thereby running the risk of throwing out the baby with the bath water.

In the present volume this tendency is noticeable particularly in Le Fanu's stance towards evolutionary theory, which is partially hostile, though for reasons that remain unclear. In the account of human evolution, we are told that 'there is nothing to suggest the major mutations that one would expect to account for the upright stance or that massively enlarged brain...' (47). But the relation between genotype and phenotype is a subtle one, and the extent of genetic variation bears no obvious 1:1 relationship with the extent of phenotypic variation. Darwin's *On the Origin of Species* is declared to be 'in essence immune to criticism' (108). Really? The famous Chapter Six of Darwin's book shows how very aware he was of the criticisms that could sensibly be made of his theory right from the beginning, a theory now hugely strengthened by genetics.

Assertions are made by Le Fanu about the 'impossibility' of something having happened in the way that Darwinian evolution suggests, sometimes preceded by those immortal words: 'It is difficult to imagine that...' or 'conceive how', but solid scientific reasons are not supplied as to why something should not be the case. Imagination is an unsure guide when it comes to scientific realities. There is insufficient geological time, it is claimed, for evolution to account for the transition from a 'small mammal to the extraordinary whale' (120). There must be some 'prodigious biological phenomenon, unknown to science' that ensures that the bodily organs operate to such a high degree of efficiency (122). It is maintained that random genetic variations are insufficient to bring about a complex

organ like the eye (124). Even enthusiasts for Intelligent Design, a group to which this author does not appear to belong, seem to have given up using the eye's complexity as an anti-Darwinian argument, so well are the various stages of the eye's evolutionary development now delineated.

Far from viewing in a positive light the contemporary science of genomics and our increased understanding of how the information encoded into DNA is translated into an organism, the author believes that these advances only make clearer the inadequacy of DNA to explain 'the diversity, form and attributes that so readily distinguish man from fly'. Enter something that sounds very like a revived vitalism: 'there must be some non-material formative influence that, from the moment of conception, imposes the order of form on the developing embryo'. 'We cannot, by definition, know that formative "life-force" directly, only infer its reality as the missing factor that might bridge the unbridgeable gap...' (146). Because developmental biology is, as yet, unable to give a full description of the genetic information flow that builds living organisms ('how genes fashion those delicate drooping heads' of the snowdrops, 146), the author appears to feel that this 'gap' in our present understanding can only be filled by appeals to some external 'life-force'. This claim sounds very similar to the nineteenth century German *Naturphilosophie*, as propounded by natural philosophers of that era such as Blumenbach (1752-1840), who proposed that the embryo developed by the action of a special 'formation force', but the idea is unlikely to appeal to contemporary developmental biologists.

The discussion of the neurosciences follows a similar line of argument, with the author underlining the non-materiality of the mind and the insufficiency of current science or philosophy to give a coherent account of qualia. Whilst this claim is surely correct, the immateriality

of mind is overstated, with the author claiming that 'contrary to every known law of nature, non-material thoughts and emotions directly influence the physical structure of the brain' (223-224). 'Thoughts and emotions' are surely very material embodied entities, whereas their description in the language of the conscious agent provides a description complementary to that of physical embodiment.

It is the author's contention that contemporary neuroscience has led to the rediscovery of the soul and of the 'self', since qualia and the personal conscious language of the 'knower' escape all attempts to comprehend scientifically. 'We then link together the rediscovered soul and that life force with Newton's laws of gravity as the three forces of the non-material realm that impose order on the material universe and all within it' (228). The author goes on to suggest that if only biologists could wean themselves off their addiction to theories like 'materialistic' Darwinian evolution, then this would free up their minds to tackle some other scientific problems. One does gain the impression of a hope here that other manifestations of the 'potent forces of the non-material realm' might thereby be uncovered.

This reviewer can well understand why an active commentator on the present cultural scene might react against the arch-reductionists who engage in 'nothing-buttery' expositions of their science. Nevertheless, it is a pity that this has led the present author to invoke mysterious forces as a possible corrective, a strategy similar to that of the Intelligent Design proponents who invoke 'mysterious design' principles to 'explain' biological complexity. But both concepts are notoriously fragile, based as they are on supposed gaps in our current scientific explanations for things, gaps that will inevitably be closed with the ongoing march of science.

If only this author had explored the traditional bulwarks against arch-reduc-

tionism – complementarity, emergence, parallel narratives – a little more thoroughly, leaving aside the invocation of 'mysterious forces', then this book would have been much easier to recommend.

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Michael Poole

User's Guide to Science and Belief

Lion Publishing, 2007. 128 pp. pbk.
£6.99. ISBN 978-0-7459-5274-1

Poole, in this reprint of his 1990 book, highlights with clarity some of the important themes, positions and counter positions associated with the long running and much misrepresented debates concerning science and belief. In his analysis Poole succinctly and with careful intent identifies some of the pitfalls and red herrings that often obscure and deaden realistic discourse. With an impressively organised structure he addresses head-on a historical understanding of science and Christian theology in the Western world. Poole uses, powerfully, quotation and imagery to illustrate subtle points of distinction and syntax. These have the potential to move the reader past philosophical culs-de-sac and he thus helpfully navigates some areas of the crowded world of writing on the theme of science and religion.

Poole's book portrays an understanding of God as immanent, standing alongside humankind; a God whose character and workmanship is revealed by the process of science and scientific discovery. Perhaps rather surprisingly for a revision of a previous print, Poole manages to explore the agency of a Creator with light, lively freshness. This is, I think, only partly due to his clarity and simplicity of expression. His writing also reveals integrity underpinned with philosophical coherency.

Reading this book would be an excellent starting point for anyone interested in exploring the interaction of science and religion. However, the book may have a wider utility too and in writing this review I was particularly interested to hear the views of some of my AS Level 'Perspectives on Science' (PoS) students at The King's, Canterbury.

We looked together in detail at two chapters: 'The Galileo Affair' and 'Creation and Evolution'. The chapter on the Galileo Affair was considered to be supported by 'helpful diagrams' that 'highlighted the main gist of the argument'; additionally, 'notes were used well'. However, two omissions concerned the students – firstly, it was not immediately clear what question was being addressed at the beginning of this chapter, although the overall impression was that the chapter was interesting and thought provoking. Also, and unfortunately, the sources often had no easily traceable reference.

The chapter on 'Creation and Evolution' had 'an interesting analogy at the beginning, which helped the reader understand the focus and direction of the chapter'. However, there was some question as to who the target audience was. But it was felt that material of this sort would be placed well in school libraries and that it would be a useful reference book 'probably at A-level standard'. One of the clear benefits of the book was that it gave different perspectives to polarised accounts of science and religion debates.

Overall, my PoS students gave this book a 'thumbs-up', one student writing: 'anyone with strong opinions... should read it to broaden horizons!'

Poole concludes his book by considering the question of 'Accident or Design?' He briefly explores some of the ideas of William Paley and Charles Darwin. Poole also considers the Intelligent Design (ID) movement, highlighting some of the associated philosophical problems that he associates with this viewpoint. As at other places in the book, Poole is

unafraid of exploring what he considers to be the incorrect use of language and literary device. For example, when reporting Peter Atkins (119), he challenges the legitimacy of personifying chance even as a literary device. Poole illustrates his point by quoting Lewis Carroll's use of 'nobody' in *Through the Looking Glass*. Here Poole is quite critically insurgent; I wonder, though, by making reference to Carroll, whether he missed making reference to Homer's *Odyssey* and the fate of Polyphemus?

On a very positive note, Poole reminds the reader (121) of the second Charter of the Royal Society, where Fellows were commanded to direct their studies 'to the glory of God the Creator, and the advantage of the human race'.

Hence, Poole's argument is for a world of responsible use of science, consistent with and supported by unmuddled thinking on questions of science and belief.

In the right hands, I think that this would be a useful text for schools for the post GCSE level. However, I could also see it being for Church and Youth leadership groups where it could very easily support and inform discussion. I have little hesitation in thoroughly recommending this book to undergraduate students too. But I do share the view of my former students at The King's who felt that this book could offer a lot to anyone who has extreme views on the subject of science and belief. They would have liked to see robust referencing conventions used, but this particular omission should not detract from an otherwise rigorous and carefully considered book.

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John Hartnett

Starlight, Time and the New Physics

Eight Mile Plains, Queensland, Australia:
Creation Ministries International, 2007.
231pp. pb. £6.00. ISBN 978-0-949906-68-
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Near the beginning of Chapter 1, we read: 'The Bible tells us (in Genesis 1) that the earth was created four days before the creation of the stars in the universe...God created Adam only two days after the stars...' Clearly, this book is going to be a presentation of a Creationist-Young-Earth viewpoint of cosmology. Two sentences earlier, we read: 'I don't dispute the commonly held view that the visible universe is about twenty-eight billion light-years across...'. A few sentences later: 'For creationists this has been one of the most difficult problems to solve.' Although I am not a Young-Earth man myself, I consequently expected an unusually interesting presentation of the Young-Earth position.

One valuable aspect of the book is its useful review of recent observational developments in cosmology. Being retired, I was largely out-of-touch with details of topics like 'dark matter', 'dark energy', anomalous features in galaxy rotation, apparent irregularities in the distribution of galaxies throughout the visible universe, and so on. The book was a worthwhile remedy. Dr Hartnett seems to be a competent observational cosmologist.

On the other hand, the work in this book is of very uneven quality. The following notes deal with a small selection of specific examples of inadequacy.

First, however, there is a general principle to be followed. Any adequate theoretical description (a *model*, usually mathematical) of a body of observation must embody features known to occur, must exclude features believed not to occur, and must have a logical structure which would satisfy William of Ockham: 'It is wrong to use a lot where less will do.' When a model is proposed, it may

involve an attempt to predict hitherto unnoticed behaviour. If experiment confirms that the prediction is valid, the model is provisionally acceptable. Otherwise the model is revised or, in the worst case, rejected.

Einstein's general relativity provides a very precise model for the universe as a whole. In particular, it labels 'events' with the 'points' of a 4D-structure (*space-time*) with a metric whose matrix everywhere has one positive eigenvalue and three negative. This straightforwardly yields the concepts of time and 3D space. The *past* and *future* of any typical observer are clearly distinguishable, and are separated by the observer's *present*. On the other hand, the 'New Physics' of this book's title (the Carmeli-Hartnett 'spacetimevelocity' model) is a 5D-structure (2 positive/3 negative). No significance for the nature of each individual 'point' is offered. No significant distinction between past and future exists – the topology is wrong – and one's future can re-enter one's past without difficulty. The extra dimension in this context has introduced a looseness which defies Ockham's razor (28), and which prohibits any reliable correspondence between model and reality. All are substantial flaws.

The author uses the words 'the rate at which time flows' (108), and similar phrases (111). It is difficult to decipher any meaning here. In Observer A's immediate neighbourhood time flows at precisely one second per second; it has no other option. Similarly in Observer B's neighbourhood. If A and B are separating, it may well happen that *both* may see the other's clock as running slow. This 'clock paradox' rules out the notion of 'absolute' time in standard relativity, and for the same kind of reason will rule it out in the Carmeli-Hartnett model also. Inserting an extra timelike dimension will not help. If any writer believes that 'absolute' time is essential to physical reality then he must be prepared to discard altogether theories such as Einstein's. Otherwise six days (93-95) will be

unhappy alongside a billion years.

A final comment: 'He wraps himself in light as with a garment; he *stretches* out the heavens *like a tent*.' (Ps. 104:2, author's italics, 91,92) This text was offered as a primary justification for an expanding universe. I provisionally believe in an expanding universe. However, I remembered times when I camped in the Scottish Highlands. I would stretch out my tent. Then I would admire the starlit heavens stretched out like a tent. Then stretch out on my airbed, and sleep while the night stretched out to day. I cannot include expansion in any of these thoughts. I sincerely believe that we must not use Scripture like that.

Normally, on finishing a book like this I would casually place it on one side and get on with other business. But not here. My worry is summarised in a quotation from another writer: 'If [unbelievers] find a Christian mistaken in a field which they themselves know well and hear him maintaining his foolish opinions about our books, [presumably the books of the Bible] 'how are they going to believe those books in matters concerning the resurrection of the dead, the hope of eternal life, and the kingdom of heaven?' (St Augustine, in Latin, c.400) Over the last sixteen centuries, the 'foolish opinions' have regularly changed. The underlying problem has not.

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Fraser Watts (editor)

Creation: Law and Probability

Aldershot: Ashgate Publishing Ltd,
2008. 200pp pb. £19.99. ISBN 978 0
7546 5890 0

This book is a collection of papers resulting from a conference of the International Society for Science and Religion, held in Boston in 2004. The lineup of contributors is impressive, with chapters

from David Bartholomew (God and Probability), John Bowker (Creation, Law and Probability: A World Religions' Perspective), Philip Clayton (Contemporary Philosophical Concepts of Laws of Nature), George Ellis (Multiverses and Ultimate Causation), Neils Gregerson (Self-Organisation), Peter Harrison (The Development of the Concept of Laws of Nature), Nancey Murphy (Neuroscience, Determinism and Downward Causation), Michael Ruse (Chance and Evolution), Wesley Wildman (From Law and Chance in Nature to Ultimate Reality), and an 'Afterword' from John Polkinghorne. The range of the contributions makes an adequate review difficult, and in what follows I shall comment on only three of the chapters.

George Ellis's chapter, 'Multiverses and Ultimate Causation', gives an overview of multiverse theories. In particular he gives an insight into their complexities in terms of the choice of physical parameters (which Ellis helpfully categorises in terms of physical and cosmological parameters, and parameters relating to the existence of life), and the problems surrounding the possible distribution of such parameters. He places current multiverse theories within metaphysics rather than science, while pointing out that there is nothing wrong with metaphysics as a discipline. When it comes to God, Ellis feels that the existence of a multiverse does not necessarily exclude the existence of God, and wryly observes that, in any case, in Tegmark's 'anything that can happen will happen' version of the multiverse there should be universes that are both theistic and atheistic. A multiverse does not provide ultimate explanation. The reasons why a multiverse exists, or indeed why, within the possible classes of multiverses, a multiverse that is rich enough to accommodate the existence of sentient beings exists, remain unanswered. Thus the multiverse has the potentially double disadvantage of being pushed from science into metaphysics, while still remaining unable to answer important meta-

physical questions. Ellis ends his chapter robustly: 'Existence of multiverses is neither established, nor even an establishable scientific fact. Their use is justified by philosophy rather than science. They can be used in an explanatory context, provided the philosophical nature of their justification is acknowledged. They do not solve metaphysical or theological issues.' (78)

Nancey Murphy's chapter, 'Neuroscience, Determinism, and Downward Causation', begins by pointing out that the philosophical problem of free will has to date resisted any adequate solution. Murphy suggests that this indicates that 'the problem itself is somehow misunderstood, badly formulated' (123) and her essay argues that the solution, or rather dissolution, of the problem is to be found in thinking of free will not using the more traditional approaches of determinism or indeterminism, but rather by using the idea of top-down causation. Murphy emphasises the fact that in describing the brain we are dealing with a complex and nonlinear system, and thus free will can be thought of as an emergent property of a biological system. Such an approach leads fairly directly to what some (including myself) feel is the troubling issue of artificial intelligence. Namely, if free will is an emergent property of a physical system then there is in principle no problem with a sufficiently complex computer being described as free, or for that matter, conscious. That said, Murphy's approach provides the reader with a refreshingly different perspective on the issue of free will.

John Bowker's chapter (Creation Law and Probability: A World Religions' Perspective) gives the reader a view of the issues of law and probability from the perspective of Indian and Asian religions. One interesting point made by Bowker is that Eastern faiths see god(s) as the *remedy* to a law governed world where there is no room for chance: 'deities break up the determined order by pursuing their own aims. That is why Indians regard as

absurd Einstein's statement that God does not play dice. Indians know that he does, and have many stories to show why the indeterminacy of a game of dice is necessary for the functioning of the universe' (184). Bowker also points out that in Buddhist thought there are five main sources of causation for any given event, ranging from personal choice, up to environmental and transcendental causes, and thus implicit is the idea of a complex system with multiple causes, or more circumspcctly, in Bowker's view, multiple constraints on the system. Bowker's chapter lends some weight to the idea that in the future science may form a fruitful, and neutral, common ground for discussions between world religions. However the chapter also reveals the genuine, and to my mind irreconcilable, differences between some religions in terms of the world-views they espouse and the gods they worship.

An advantage of a collection of essays such as are found in this book is that they provide relatively brief, though scholarly, introductions to a range of topics from interdisciplinary perspectives. As such this book could form an excellent foundational text for a set of advanced undergraduate or postgraduate seminars on science and religion.

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James Hannam

God's Philosophers: How the Medieval World Laid the Foundations of Modern Science

London: Icon Books Ltd., 2009. 435 pp.
hb. £20.00. ISBN 97B-184831-070-4

One of the many groundless myths that litter the path towards a more balanced understanding of the historical relationship between Christianity and science is the one which states that, between the close of antiquity and the Renaissance, science was suppressed by the Church. The source of this myth constitutes a study in itself, which particularly fasci-

nates me; though over the past few decades the work of now sadly deceased scholars of the calibre of Alistair Crombie and John North has done much to counter it.

James Hannam's *God's Philosophers* provides us with a major new resource in the rehabilitation of medieval Europe within the scientific fold of intellectual and spiritual history. Hannam's book, moreover, is sweeping in its range, covering 1,100 years of history, from Boethius to Galileo. Its value lies in its power of synthesis, bringing together as it does, and as its notes and references testify, a large corpus of published specialist scholarship, and presenting it in a well-organised and very readable form.

Central to the book is the creative dynamic that existed in medieval Europe between Greek pagan philosophy (especially that of Plato and Aristotle), the world of nature, and Christian theology. For as Hannam shows, one of the tasks that occupied many early Christian theologians, such as St Augustine and the twelfth-century William of Conches, was the reconciliation of what might be called 'proto-Christian' Greeks, such as Plato, with the Bible. For if God was the Creator of all things, then he could not have made truths that contradicted each other. And by way of an object-lesson for modern-day fundamentalists is St Augustine's treatment of the flat earth suggested in *Genesis* with regard to the spherical cosmology of his own Graeco-Roman world.

Things really got going in western Europe when the mathematician and astronomer, Gerbert of Aurillac, was crowned Pope Sylvester II in 999 – a scientific pope on the throne of St Peter at the millennium. But what is really fascinating is the way in which a rediscovery and re-exploration of Greek philosophy stimulated a true Renaissance in the twelfth century. Hannam traces this development, and how the new techniques of critical reasoning unleashed a fresh approach to theology and natural

philosophy (science). Could God's existence be proved intellectually, and could reason even limit the power of God? This whole radical movement is delineated, from St Anselm and Peter Abelard, to the new Aristotelianism of St Thomas Aquinas, to Cardinal Nicholas of Cusa.

Another major theological and philosophical puzzle with which medieval thinkers wrestled was how far physical research and mechanical analogy could give true and meaningful insights into how God had built his Creation. For if the Heavens alone were perfect, and the earth was flawed because of sin, how could the divine mathematics of God be traced out in the fallen physical world? Hannam deals with several case studies touching upon this problem, such as Friar Roger Bacon's optical experiments, and Abbot Richard of Wallingford's mechanically-powered astronomical clock in the early-fourteenth-century St Albans Abbey.

But of both contemporary and enduring significance were those Oxonians known collectively as the 'Merton Calculators'. Hannam reminds us that these men were the initiators of many of those mathematical and physical studies later brought to fruition and published – without any acknowledgement – by Galileo. These include mathematical investigations into the acceleration of falling bodies, the geometrical curves in which projectiles such as arrows move, and even the possible properties of the vacuum. For if two contiguous flat surfaces are suddenly pulled apart, how does the air rush into the resulting space? The Mertonians, moreover, were also pioneers of the graph as a mathematical technique.

And all of this work and much more besides was taking place beneath the spiritual and academic umbrella of the Catholic Church, and all the key figures were clergy. And unless one's inquiries led to a deliberate denial of God, such as in the case of the Amalricians in 1210, or Giordano Bruno (an ex-Friar) in 1600, then a remarkable toleration prevailed.

God's Philosophers supplies a powerful, accessible and very much needed corrective to the myth that the medieval Church suppressed science. Indeed, it shows quite the opposite to have been the truth. The book is beautifully written, wholly free from jargon, and astonishingly modestly priced for such a hardback.

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Andrew Newberg and Mark Robert Waldman

How God Changes Your Brain: Breakthrough Findings from a Leading Neuroscientist

New York: Ballantine Books, 2009.
348pp. US\$27.00. ISBN 978-0-345-50341-1

In 2001 Carol Albright and James Ashbrook published their provocatively entitled book, *Where God Lives in the Human Brain*. Drawing on the rapidly increasing knowledge of how the human brain works they claimed to establish where God resides in our brains. Eight years later a new book, with its equally provocative title, *How God Changes Your Brain*, states categorically (60) that 'There is no God spot....', only to tell us (101) that 'To a neuroscientist this suggests that believers and disbelievers may harbour a "God neuron" or "God circuit" somewhere inside the brain.' When different 'experts' offer such diametrically opposed views within the same book and the same decade the nonspecialist may be forgiven for being confused.

One of the authors, Andrew Newberg, is a respected neuroradiologist who has pioneered the field of neurotheology. The other is therapist Mark Robert Waldman. Their joint authorship is reflected in the book's content, which is part neuroscience, part description of meditation and relaxation in the tradition of Herbert

Benson, and part discussions of the tenuous links between the two. Of the book's 348 pages, one hundred (147-245) describe meditation and relaxation techniques claimed to 'transform your inner reality'. A hundred and forty pages are devoted to a mixture of basic neuroscience and a discussion of how this might help us to understand the neural substrates of the wide varieties of, mainly American, religious beliefs: Christian, other faiths, agnostic, and atheist. Newberg and Waldman also reflect on what different groups think about their religion and on how the strength of their beliefs may reflect the selective activity of different brain sub-systems. Just under a further hundred pages (259-348) list a thousand references and a topic Index.

The diverse expectations set up, first by the book's cover – 'Breakthrough Findings from a Leading Neuroscientist' and 'How God Changes Your Brain' – together with the claim (18) that 'Ultimately, this book is about compassion' – understandably leave the reader unsure what to expect. The authors are commendably careful in not overstating their case, and this at times casts doubt on what is special about the claims in the book's title. They note, for example, that 'all conscious thoughts and images have a neurological impact on the brain' (83). Nothing new here. Studies of placebo effects on the brain over two decades have demonstrated this.

Andrew Newberg is quite open about his own faith position when he writes (164), 'To me it doesn't matter if God is an illusion or fact.' Whilst advocating practices for meditation and relaxation that will benefit cognitive activity the authors make it clear (50) that 'you get benefits using practices unrelated to religion'. If these extracts leave you confused then you can understand this reviewer's reactions.

One of the puzzles for the reader is the contrast between some of the careful scholarly statements about aspects of

neuroscience and some of the claims about meditation and relaxation techniques all within the one volume. For example in Chapter 3 they make very clear the complexity of the neuroscience issues being studied and the difficulties of teasing out the effects of any particular religious activity on a specific part of the brain or on a brain system. A view echoed six months after the book's publication by one of the authors, Andrew Newberg, when interviewed about the book by a *Reuter's* correspondent (August 17, 2009). Newberg 'cautioned against expecting "neurotheology" to come up with surprising insights soon. As good as our techniques are, they are still incredibly crude. We have a long way to go'. (<http://www.reuters.com/article/healthNews/idUSTRE57G3LN20090817?sp=true>).

This book comes at a very early stage along the way. If you are interested in following through on some of the most recent neuroscience research on topics related to neurotheology a visit to your nearest library holding this book will give you access to up to a thousand such references. If you wish to learn yet another technique for meditation and relaxation and are prepared to buy a CD that is marketed by the authors you may wish to purchase this book.

Readers of this journal, sensitised to the confusion created when language categories are unthinkingly mixed, will wince when they read, at times, that it is brains that think, at times it is neurones that think, but seldom it seems is it people who think. There are similar unhelpful mixtures of brain language and mind language cropping up throughout. Altogether it is a tantalising mixture that seems not to have been left long enough in the distillation process before appearing.

Malcolm Jeeves, past Editor-in-Chief of *Neuropsychologia*, is President of Christians in Science.

Jeffrey Schloss and Michael Murray (eds.)

The Believing Primate: Scientific, Philosophical, and Theological Reflections on the Origin of Religion

Oxford: Oxford University Press, 2009.
365 pp. hb. £30.00. ISBN 978-0-19-955702-8

This book offers a multidisciplinary collection of essays from the relatively new field of cognitive and evolutionary science of religion, some by leading practitioners in the field, and others (the majority) by philosophers and theologians. There are growing indications that common features of religion can be explained in terms of the evolution of human psychology. These essays deal with questions such as 'Do such accounts show religion to be an accidental by-product of our evolutionary development, or might it be adaptive? Do scientific accounts of religion undermine the justification of religious belief and morality?' and 'How legitimate is methodological naturalism (the policy of excluding supernatural entities from scientific explanations) when we are explaining belief in supernatural entities?'

The essays are all interesting, though some are available elsewhere and they mostly seem written for fellow specialists in the field, rather than for interested amateurs. This is also true of the editorial introduction, which does not do much to introduce the field or summarise the essays, but rather offers diverse insights on the subject matter.

The order of chapters is likewise not in sequence, jumping headlong into detailed and disputed ideas about the role of belief in supernatural agents in the evolution of human cooperation before offering more introductory essays on cognitive science of religion by Justin Barrett and Paul Bloom.

The balance of opinion is probably in favour of this new science's not posing serious problems for Christian belief. Del Ratzsch argues for a growing awareness

of the importance of human psychology and intuition in both science and religion. Paul Bloom suggests that the data does not fit easily with Alvin Plantinga's updating of Calvin's idea of a *sensus divinitatis*, a sense of divinity, because belief in a single God is not universal. In contrast, Justin Barrett, a practitioner who is a Christian and more sympathetic to Plantinga's claim, presents data suggesting that belief in an all-knowing creator is especially intuitive.

This raises an issue I had with the book generally, the preponderance of 'near misses' rather than true dialogue amongst the contributors. Bloom criticises an idea of Plantinga's, but philosopher Peter van Inwagen, not Plantinga, responds. Barrett's work, though apparently relevant, is not referred to. Plantinga *does* have an essay in the book, but it does not interact with Bloom nor the so-called 'standard model' in cognitive science of religion. (Philosopher of religion Michael Murray does do this usefully and seems to be drawing on Plantinga's idea of properly basic belief, but again does not respond to the problem Bloom raises.) Charles Taliaferro points to apparent inconsistency in 'new atheist' Dan Dennett's treatment of philosophy of mind and science of religion, but Dennett's work is absent from the collection. Elsewhere, sociologist Christian Smith argues on more philosophical grounds that belief in universal human rights seems to require a supernatural underpinning. He is followed by David Sloan Wilson who interacts critically with some of Smith's published work on sociology and the evolution of morality, but not directly with his arguments in the preceding essay. There is thus frequently a sense that contributors have talked just past one another rather than that a proper debate has ensued, and that opportunities for creative dialogue have been missed.

That said, this book is a welcome sign that philosophers and theologians are beginning to interact with a novel and

exciting field and, while not suitable for beginners, those seriously interested in evolutionary cognitive science and the rationality of Christian belief will find a variety of stimulating articles here.

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Léon Turner

Theology, Psychology and the Plural Self

Farnham: Ashgate, 2008. 227 pp. hb. £55. ISBN 978-0-7546-6519-9

The 'Ashgate Science and Religion Series' is described as accessible to academics, research workers and postgraduate and final year undergraduate students. However, on the basis of reading this particular book, I would say that accessibility for the non-specialist is limited. Dr Turner is a Research Associate in the Psychology & Religion Research Group at Cambridge University and in the opening line of his acknowledgements states that his book was based upon his PhD thesis. In my opinion more could have been done to make this doctoral dissertation more accessible to a wider audience with little grounding in the language of the social sciences. There is little in the way of fundamental background material and an extensive use of jargon with a paucity of explanation. Although there is a comprehensive index, a glossary of technical terms would have been very helpful to the non-specialist reader. However having said that, this extensive study of a very interesting area will provide a valuable source of material (the Bibliography lists 291 items) for those carrying out research in related areas of philosophy, psychology, sociology and theology.

Turner's aim is to present a better understanding of the nature of the self and personhood that takes into account recent developments in psychology, sociology and theology. He begins by listing a series of opposite pairings that have been used to describe the self: me and I; the

object of experience and the experiencing subject; the source and product of identity; immanent and physiological yet transcendent and immaterial; unique, singular and individual, but also universal, plural and relational. From this, he selects one pairing, unity (singularity) and multiplicity (plurality) of the self, to examine over the next six chapters.

Turner is concerned to point out that the generally accepted view of equating singularity with normality and multiplicity with psychopathology is incorrect. While recognising cases where self-multiplicity is abnormal, for example the demon-possessed man that Jesus encounters in the region of the Gerasenes (Gadarenes): 'My name is Legion for we are many' (Mk 5:9) and dissociative identity disorder (multiple personality disorder), Turner suggests that the idea that self-multiplicity equates to abnormality needs to be revised. He, like others, identifies the decline of the unitary self with the shift from modernity to postmodernity in the mid-1980s and the movement from local communities to a globalised society. With the passing of the certainties of modernity and individual cultures, a new identity characterised by multiplicity and mobility, and an ephemeral and superficial nature began to emerge.

For Christians this poses a potential challenge to our beliefs. Postmodernity has proclaimed the death of metanarrative (e.g. the 'Salvation Story'), individuality and absolutes, while self-multiplicity poses the questions: (i) if human beings are created in God's image, which of the many selves bears this image and (ii) if these images are transitory and fragmented, who (which) is burdened by sin and who (which) is ultimately saved? Turner takes all of this into account when critically examining the contemporary relationship between theological, anthropological and secular social scientific (psychological and sociological) accounts of the nature of self, personhood and identity.

The challenge to the reader trying to

get to grips with the language is there right from the beginning of the first chapter: 'In the existentially challenging narratives of the postmodern novel, the mechanistic computational metaphors of cognitive psychology and the post-traditional discourses of social theory, the concept of individual personhood has been gradually dismantled.' (9) The historical origin of the concept of self may have arisen as early as 1200, although some scholars have identified the seventeenth century polymath, René Descartes, as the key figure in the development of our modern understanding of self. Self-fragmentation (multiplicity) of self is an idea linked to the rise of postmodernism and the ideas of Jean-François Lyotard.

Chapter 2 discusses the relationship between the fragmented self and an increasingly fragmented society that results from an unprecedented rate of sociocultural and technological change. While this chapter examines the sociological theories of representation of self, the next chapter looks at contemporary psychological ideas. Both of these chapters, for me, were heavy going, so when it came to chapter 4 on psychopathology, I felt that I should be on more familiar territory. The clinical discussion of dissociative identity disorder at the beginning was more straightforward but in the second half, the introduction of 'narrative identities' again found me 'wading through' complex and unfamiliar language.

The final chapters focused on personhood and the image of God (*imago Dei*) and the writings of the German theologian Wolfhart Pannenberg and Alistair McFadyen (University of Leeds, Theology & Religious Studies). It would have been helpful here to have some biographical information on these scholars rather than assume the reader's familiarity with their importance in this field. It is in the presentation of Pannenberg's ideas that we find the most significant discussion of biblical evidence related to the nature of personhood (131). These two

chapters, above all others, best illustrate the case that this book was written for a specialist audience and that there had been few changes made from the relevant chapters in the original PhD thesis.

The book's conclusion is more readable but at the end I was left with the question 'so what?' This was evident when I read: 'Sociological, psychological and theological concepts of self-multiplicity and unity, for example, will undoubtedly continue to differ greatly from one another as a result of differences in the fundamental concerns of these disciplines.' (193) Put another way, our understanding and belief about the nature of self is a product of the particular academic discipline to which we subscribe and, while

I agree with Turner that there is need for dialogue between these disciplines, this would be primarily of a theoretical nature as to me the practical implications are more obscure.

If you wanted to get a feel for the subject first, I can recommend Turner's 2007 paper entitled: 'First person plural: self-unity and self-multiplicity in theology's dialogue with religion', *Zygon Journal of Religion & Science* 42, 7-24, which is essentially a synopsis of the book.

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