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NOTES ON CONTRIBUTORS

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EDITORIAL AND REPORT ON THE SEPTEMBER 2010 CONFERENCE

This issue continues our celebration of the work of John Polkinghorne through an article by Peter Barrett on his writing, especially his recent book *Theology in the Context of Science* (2008). Barrett was one of those presenting work at the conference in Polkinghorne's honour in Oxford in July, jointly organized by the International Society for Science and Religion and the Ian Ramsey Centre. Among many fine memories of that event I shall particularly treasure Ian Barbour's lucid summary of the science-religion field, now published in *Theology and Science*, and Polkinghorne's own response to the many papers engaging with his work – always acute, yet also humble and open to seeing the best in contrary ideas. It was a privilege to be present at exchanges of this quality.

With this issue I have also introduced a new feature. I have invited members of the Forum Committee to write short pieces about key books on science and religion that particularly influenced them in the past. Our current Chair, Dr Kenneth Wilson, offers the first such article – based on his reading of Charles Coulson's *Science and Christian Belief*.

The Forum's major conference for 2010 was held in April in Edinburgh, jointly with the European Society for the Study of Science and Theology. A report of this appeared in the last issue. However, a further workshop was held at the Queen's Foundation, Birmingham, on September 4th. The aim was to review the current state of the science-religion debate, and its prospects for development. It was hoped that this would, in turn, feed into the drafting of the new edition of the textbook *God, Humanity and the Cosmos*, due to be published by Continuum in the autumn of 2011.

I thank Queen's Foundation for their hosting. I am also most grateful to the 30 or so members of the Forum who attended. Everyone contributed thoughtfully and energetically to the conversation, and some very helpful and creative thinking took place. I also thank those members who kindly chaired sub-groups.

NOTICE OF 2011 CONFERENCE

Inspiration in Science and Religion

Sunday 25th September - Tuesday 27th September 2011

To be held at Cumberland Lodge, Windsor

Inspiration is twofold: on the one hand it is a sense of purpose which permeates everyday activities. On the other hand it refers to a moment of clarity, a moment in which some internal struggle becomes resolved or some inchoate idea becomes formed. But where does inspiration come from and what is its status in different areas of human endeavour?

Artists are used to talking about inspiration; they are notorious for seeking it and channelling it. It must be the case, though – or is it? – that inspiration is central to scientific endeavour and religious experience. Scientists often have a strong sense that the purpose of their work is to reveal the truth about the way things are. Equally, 'eureka' moments are not uncommon in scientific work. Religious people of all persuasions often refer to the inspiration which guides their life, perhaps as 'a calling'. They, too, have the other kind of inspiration, the moment of clarity; epitomised by the road to Damascus experience.

This conference seeks to address an ambitious set of questions: to what extent is inspiration a feature common to science and religion? Are they categorically *different* forms of

inspiration insofar as they are derived from different sources? What is the status and role of inspiration in these different fields? Can inspiration be defined in neurophysiological terms or is it quintessentially ineffable? Is inspiration somehow an intrinsic part of all pursuits of truth and knowledge? If so, is our educational system fostering inspiration or stifling it?

Please check the Forum website, www.srforum.org, for developing details of this meeting.

A BOOK THAT MADE A DIFFERENCE

THE FORUM CHAIR, DR KENNETH WILSON, BEGINS OUR NEW SERIES.

C.A. Coulson, *Science and Christian Belief*. Oxford University Press, 1953; pp. 127, hardback, ASIN B0007E9XZ2, paperback B0007J3E5W.

I had the good fortune to go to Kingswood School, a Methodist Public School in Bath, which had a remarkable headmaster, A.B. Sackett. There was nothing worthwhile in which he was not interested and he was determined, as far as in him lay, to ensure that his pupils were as generously intrigued by the world in which they were set. Thus the sixth form had frequent evening lectures from distinguished visitors. My lifelong interest in Aquinas, for example, was stimulated by T.S. Gregory, a former Methodist minister who had become a Roman Catholic and literary editor of the much lamented *Listener*. I learned from him that if you were going to offer an account of anything, if it was to be intelligible, it had better be consistent with everything else you knew – or thought you knew.

A.B. Sackett was a historian, but he had a profound curiosity about science and religion which he did his best to communicate to all of us. He got us to read J. Z. Young, *Doubt and Certainty in Science*, I remember, which got me interested in the functioning of the brain, the body/mind question and by implication what it meant to talk about the existence of the soul. But when Professor Charles Coulson came in 1955 to an evening lecture to talk about 'Science and Religion', I was hooked. I bought his book as soon as I could lay my hands on a copy and have been creatively puzzled about science and

religion ever since. How does one with intellectual integrity and moral insight do justice to each of these areas of human enquiry and to the intimacy of their relationship(s)?

The *Guardian* review quoted on the back of the Fontana second edition of Coulson's book in 1971 is stunning. 'Most exciting and illuminating . . . this book of a learned mathematician, who is soaked in the history of science and is as loyal to it and its austere conditions of study as to religion, and finds these two loyalties one and the same, it is a very fine piece of work indeed.' I wonder who could write a book today which would provoke such a response – quite apart from the OUP first publication there had been five impressions in Fontana paperback beginning in 1958, before the second edition appeared! What daily paper and which reviewer would now welcome a book on this subject in such glowing terms?

Of course, Coulson's engaging personality, easy style of lecturing and sheer interest in his subject informed my first reading of his book, but on re-reading it now I find there are things which are still pertinent. For example, he rejects any notion of a god-of-the-gaps; indeed it has been suggested that he invented the term though I cannot confirm that. It must be true as he says that 'either God is in the whole of nature, with no gaps, or He is not there at all'. But for all that we accept this matter-of-factly to be the case, I wonder whether we have thought through all the implications.

If, as Coulson also affirms, 'religion is a total response to all our environment', then we had better be as clear as we can be what we mean by 'our total environment'. It is, I believe, a just criticism of some scientists that they exclude by definition, some aspects of our environment by limiting the range of human experience which is allowed to count as knowledge. But it is equally true that some religious believers and theologians want to pick and choose among the results of scientific enquiry in order to shore up their unconsidered

perspective on religious belief. If, as seems to me to be the case, religious belief and the practice of science are forms of human *enquiry* about 'our total environment', then we must accept in each case that the enquiry is open-ended and that they are mutually informative.

In this exciting enterprise, there is a 'givenness' about our experience which we can usefully shape for particular purposes by the various disciplines of enquiry at our disposal, but with the results of which we have constantly to come to terms. This 'wholeness' requires imagination and moral sensitivity, if we are ever to discern the relationships that give us life and affirm our sense of being not individuals or temporary blotches of matter in a dense nothingness of neutrinos, but persons-in-relation. Whether we can go beyond that and affirm, as Coulson does, that this demonstrates the reasonableness of believing that behind and within 'all our environment' there is personal being which we call God, I doubt. However, it certainly makes it reasonable that we should continue to think through what it means to believe that it does and what, if it does, it has to say about our attitude to ourselves, our behaviour to one another and to the world in which we are set.

We are not left, as some would have us believe, merely with the relics of religion; we are left with false religions which human societies have sought to domesticate for their own selfish ends. Coulson demonstrated to my satisfaction at the time I read this book that any religion worth its salt, is intellectually stimulating, morally demanding, and unendingly intriguing. One might say the same of science. As a form of enquiry it is personally stimulating, imaginatively intriguing, and never-endingly challenging. The human search for sense, meaning and purpose is one and demands that we treat it so or we lose touch with reality. But there's a thought, what is reality?

REVIEW ARTICLE

John Polkinghorne's Trinitarian Theology in the Context of Science

ARTICLE BY PETER BARRETT, with particular reference to Polkinghorne's *Theology in the Context of Science*, SPCK, 2008; pp. 128, paperback, ISBN 978-0281059164, £9.99.

"I admire John for his courage in tackling difficult questions" – so said physicist Chris Isham in conversation some ten years ago. And one of the most problematic in science-and-theology is the topic of Christian eschatology. In this article, I wish to highlight what I understand to be the nature and significance of the writings of John Polkinghorne (JP) and the distinctive metaphysical concepts that he brings to them, including his ideas on eschatology as an essential component of Trinitarian theology. I do this first with reference to his book, *Theology in the Context of Science* (2008).

Consider his choice of the Nicene Creed as a framework for his 1994 Gifford Lectures, published in the UK as *Science & Christian Belief* (1994). Here, writes Paul Allen, "Polkinghorne lays down a definitive challenge. He chooses to work within the parameters of revealed theology in a prestigious forum dedicated to natural theology. One can imagine the surprise of those who first heard him speak". What is it, then, that prompted such a choice?

JP explains: "I differ from my predecessors in wanting to make *much more detailed contact with the core of Christian belief*" (emphasis added) and, further, "I do not find that a Trinitarian and incarnational theology needs to be abandoned in favour of a toned-down theology of a Cosmic Mind and an inspired teacher, alleged to be more accessible to the modern mind". Indeed, JP's books show him to be more in tune with

Trinitarian tradition than perhaps the large majority of science-and-theology writers, including Ian Barbour and Arthur Peacocke – yet always prepared for its tenets (in particular, the Augustinian account of the Fall) to be open to scrutiny and re-interpretation in the light of new knowledge.

At the heart of his theological thinking is the doctrine of Christ as ‘the incarnate Word of God who was crucified and resurrected’. And at the heart of his scientific thinking is his experience of quantum physics over its three lively decades of “bafflement and break-through”, 1950-1980. He describes that stimulating era of particle physics in *Rochester Roundabout*, providing detailed epistemological discussion of the scientific enterprise in the closing chapter – and this has no doubt helped crystallize his critical-realist approach to theological inquiry. Thus, he contributes to science-and-theology discourse through a singular combination of quantum physics and Trinitarian theology, aided by a carefully thought-out embrace of metaphysical ideas. His aim is to show how the scientific world-picture can be included in a Trinitarian framework of understanding in which the unity of knowledge is regarded as axiomatic and both Christology and eschatology are given due weight.

In *Theology in the Context of Science (TCS)* JP raises questions about the nature of theological thought itself. He begins with the observation that much theological construction arises as a response to particular experiences and challenges – that is, as a contextual theology, usually of an emancipatory type such as liberation, feminist or black theology. Why then are theologians, apart from a few notable exceptions, reluctant to think of science-and-theology as itself an exercise in contextual theology, just as worthy of attention as any of the other forms?

One could argue, of course, that there is a qualitative difference between morally driven theology within an oppressive socio-political context on the one hand and the

theological search for understanding within the intellectual context of scientific inquiry on the other – a distinction which has tended to keep theological activists from spending time on what may seem a less pressing field. Nevertheless, the very heartbeat of theology is surely weakened if it fails to seek the deepest level of understanding and thence achieve its full potential in both church and public life.

JP explains that *TCS* complements his earlier book, *Science & the Trinity*, which he wrote in order to place central *theological* insights on the agenda of science-and-theology discussion, given that the latter has tended to be weighted on the side of scientific and philosophical perspectives. In *TCS*, on the other hand, he invites theologians to take seriously the *scientific* understandings of the world – to see the distinctive style of thought and argument of the sciences, with their experientially based, bottom-up way of thinking, as a potentially fruitful way of doing theology. He hopes that more than the present few will make their special contribution to the discussion. *TCS* is therefore aimed in the first place at theology students – “and even, one might hope, practising theologians”.

The first two chapters of *TCS* argue the case for science-and-theology as a contextual theology and illustrate the nature and appropriateness of a bottom-up approach in both disciplines. The natural question for a scientist to ask about a novel suggestion is “What makes you think that might be the case? What is the evidence?” As he explains:

“If theology is to be conducted persuasively and successfully in the context of science, it must be prepared to respond to this kind of interrogation. My belief is that answering these questions appropriately calls for the kind of theological style I have called ‘bottom-up thinking’. The strategy required is one that seeks to move from motivating experience to attained understanding. An evidence-based approach of this kind contrasts with ‘top-down thinking’,

which attempts to start from supposed general principles and then descends to the consideration of particulars”.

In these opening chapters, JP points to the contrast between the world-views and theologies associated with classical Newtonian physics on the one hand and the surprising, counter-intuitive 20th century physics of quantum phenomena on the other. He recognizes both Wolfhart Pannenberg and Thomas Torrance as two of the few theologians of recent years who have seriously engaged the realm of scientific ideas – but both have fastened onto elements of classical pre-1920s physics and have failed to realize the fruitful connection that theology can make with the indeterminacy of nature’s causal network, unveiled in the more recent physics of quantum phenomena and complex systems.

The remaining five chapters are devoted to brief but lucid treatments of topics in the bottom-up style of enquiry characteristic of science.

Chapter 3, on ‘Time and Space’, discusses the unfolding cosmos as the cradle of biological life, necessarily vast in both time and space. It raises the metaphysical question whether the Creator sees it ‘all at once’, as a block universe, or, more impressively, sees it from a self-chosen perspective of knowing every event of creation “exactly as and when it happens”. JP points to the helpful notion, drawn from process theology, of God as both eternal in character and graciously temporal in engagement with the world.

Chapter 4, on ‘Persons and Value’, refers to both the emergence of self-conscious beings and the transparency of the universe to scientific inquiry as “astonishing” – the beauty of the cosmos and its comprehensibility in terms of mathematics can be seen as “reflections of the Mind of God”. The remarkably fine-tuned evolutionary and costly nature of the universe – costly in terms of creaturely suffering – is discussed as the setting for the emergence of humankind. JP discusses

the need to look beyond science for an adequate account of our capacity, as psychosomatic beings, for language, symbolic understanding, culture and all that is associated with perceptions of value and meaning – indeed, for the fullness of human personhood.

Chapter 5, on ‘Consonance: creation, providence, and relationality’, is focused on several points of contact between science and theology: the rational transparency and rational beauty of the physical world; the sustaining will of God (as) the ground of continuing cosmic history; the Anthropic Principle; the notion of evolutionary creation as a kenotic act of divine self-limitation; and the perplexing challenge of theodicy – “I suspect that only a universe to whose physical fabric the free-process defence applied could give rise to beings to whom the free-will defence applies”.

Chapter 6, on ‘motivated belief’, seeks to show that religious belief is not based on submission to authority but rather on bottom-up reasoning that, as in science, moves from evidence to understanding. But, in contrast to such an approach in science, theology necessarily appeals to the unique significance of revelatory events, in keeping with the nature of its subject matter. The chapter concludes with a discussion of the “perplexing issue of the apparent cognitive clashes between the beliefs of the different world faith traditions”.

Chapter 7 deals briefly with the topic of eschatology which JP has treated at length in earlier books. It is a key element in Christian thought – clearly speculative but profoundly explanatory – that this unfolding world, together with its creatures, constitutes the raw material for a new creation yet to be realized. JP’s understanding of such a transformation is discussed below.

As a final comment on *TCS*, we may note a remark in *ESSSAT-News* (September 2009) by Dutch philosopher-theologian Taede Smedes. He has long held the view that

Barbour, Peacocke and Polkinghorne allow science to dictate unduly the content and style of their theological thinking – they are guilty of what he calls ‘cultural scientism’, a charge which all three have rejected. In his highly critical review of *TCS*, he states that JP “nowhere in this book shows even the slightest knowledge of nor seems to have an interest in what goes on in modern and post-modern theology, nor does he engage in a dialogue with modern theological works”. But that is not the point of the book. It is not a description of contemporary theology itself, unlike David Ford’s *Theology, a Very Short Introduction* – it is all about the need for theologians to take seriously the scientific context of their work.

We turn now to a more general discussion of JP’s science-and-theology. Underlying much of his corpus of twenty-six books are his distinctive ideas on (i) the nature of critical realism, (ii) the question whether macroscopic physical systems are characterized by indeterminacy (an ontological property) or merely unpredictability (an epistemic limitation), and (iii) the notion of mind/matter as a dual-aspect monism (rather than mind-and-matter as a Cartesian dualism) – to which we may add (iv) his thinking on the topic of theistic eschatology in several of the books, and thence (v) his concern to address the big issues of theodicy and religious pluralism.

It is worth noting that there has been a perceptive use of ideas (i), (ii) and (iii) above by the late literary scholar, Anthony Monti, in his book *A Natural Theology of the Arts* (2003). Here, JP’s often criticized notion of macro-indeterminacy turns out to be remarkably appropriate. This is a metaphysical idea that stems from the fact that nature’s physical systems cannot be accurately described by the deterministic equations of chaos theory unless completely isolated from their environment. It follows that such systems, un-isolated as they are, may possess a subtle ontological flexibility which the equations, even in principle, cannot show.

In considering this question of an inherent looseness or 'flexible openness' in nature's causal network, JP opts for macro-indeterminacy, rather than the micro-indeterminacy of quantum phenomena, because it seems a more natural basis on which to postulate his metaphysical scheme of mind/matter monism. From this concept he suggests that mental agency, whether human or divine, could take effect by means of top-down, holistically applied, mind-to-brain input of energy-less information – some kind of 'active' information that changes the system from one configuration to another within its set of allowed equal-energy states (its 'strange attractor'). This scheme lies at the heart of JP's conception of ongoing divine action in the world – *creatio continua* – in the processes of nature and in the inspiring of human minds.

Surprisingly, despite repeated mention of its metaphysical basis, macro-indeterminacy is considered untenable by an impressive array of science-and-religion writers. R. Russell, A. Peacocke, N. Murphy, G. Ellis, E. McMullin, P. Clayton, T. Tracy and others have all voiced scepticism and most have preferred to think of micro-indeterminacy as the locus for providential divine action. JP, however, disputes their choice since it is not clear how quantum effects may be amplified to take effect macroscopically, given the "incompatibility of theories that have an intrinsic scale (like quantum theory) and those which do not (like chaos theory)".

For Monti, JP's combination of macro-indeterminacy and mind/matter monism, with its consequence of the flexible openness of the human mind/brain, is what is needed to begin to probe the concept of artistic creativity at its epistemic roots – to ask how it is that an embodied mind can encounter the mystery of music, art and literature, the realm of metaphor and symbol, and therein find meaning.

Beyond that mystery, our very existence as embodied minds raises the question of a plausible science-and-theology approach to eschatology, with its concerns about human

finitude and destiny. In his Gifford Lecture on this topic, JP begins with the scientific notion of the death of the universe – either in a whimper of endless expansion and cooling, or in a fiery climax of gravitational collapse. Science on its own indicates a far off future which is utterly bleak, not only for life but for the universe itself. Christian tradition, on the other hand, invites human beings to trust in the love and faithfulness of the Creator to produce a very different result – that is, a destiny for the whole universe beyond its death, together with a *post mortem* destiny for humankind.

JP speaks of eschatology as a *sine qua non* for any credible theology – it is “the keystone of the edifice of theological thinking, holding the whole building together” and thus an essential part of any attempt to create a comprehensive theological understanding of the meaning and purpose of the world. He quotes approvingly Jürgen Moltmann’s conviction that “from first to last, and not merely in the epilogue, Christianity is eschatology, is hope, forward looking and forward moving, and therefore also revolutionary and transforming the present” – hope that rests on “the faithfulness of God and the resurrection of Christ”. And at the heart of eschatological inquiry is the question of the meaning of the word ‘soul’ and the term ‘immortality of the soul’.

JP thinks of the human soul as the pattern that is “the real me” – a pattern of embodied personhood which is the carrier of a person’s unique continuing identity. He writes:

“My understanding of the soul is that it is the almost infinitely complex, dynamic, information-bearing pattern, carried at any instant by the matter of my animated body and continuously developing throughout all the constituent changes of my bodily make-up during the course of my earthly life. That psychosomatic unity is dissolved at death by the decay of my body, but I believe it is a perfectly coherent hope that the pattern that is me will be remembered by God and its instantiation will be recreated by him when he

reconstitutes me in a new environment of his choosing. That will be his eschatological act of resurrection”.

The scene is then set for the idea of transformation, with its themes of continuity and discontinuity. “Without an element of continuity there is no real hope being expressed for the creation beyond its death, and without an element of discontinuity the prospect would be that of the non-hope of mere unending repetition”. We can contemplate a new created order with new characteristics, yet incorporating the identities and experiences of the old.

Here, with Einstein’s General Relativity in mind, JP introduces the suggestion that the space-time-matter/energy arrangement of the present universe is to become the transformed ‘space-time-matter/energy’ of a new ‘universe’. In other words, he thinks of the “eschatological act of resurrection” as a divine act of mapping the old information-bearing structures and processes onto the new – along the lines, perhaps, of the mathematical transformation of a hologram into its associated visual image. The resurrection of the human person can then be conceived as a mapping of the soul within the general transformation of space-time-matter/energy – into a world which then, and only then, becomes panentheistic, wholly suffused with the divine presence. A world in which, crucially, there will be ‘time’.

JP goes on to suggest that eternal life will be characterized by an unimaginably rich dynamism – a process of “exploration of the endless variations of divine perfection that will constitute the harmony of the heavenly realm”. How otherwise, he asks, could finite beings encounter the Infinite? And how, indeed, could they appreciate the heights of *το καλον* – ‘the good-beautiful-just right’ – unless they had gone through the soul-making experience of life in this present “vale of tears”?

Thus, JP discusses theological inquiry in the context of science as part of “the quest for the most profound and

comprehensive form of understanding, a task to which contributions from all truth-seeking enterprises will be both welcome and necessary". He is prepared to claim that "a deeply intellectually satisfying candidate for the title of a true 'Theory of Everything' is in fact provided by Trinitarian theology". I understand this to mean that Trinitarian theology can act as the starting point for a new-style natural theology that aims to formulate a 'Trinitarian Theory of Everything' or, more precisely, a 'Trinitarian Story of Everything' – an overarching, widely-inclusive, non-totalizing meta-narrative of the creation 'theo-drama'. One that writes plurality, as Colin Gunton put it, into the doctrine of creation.

In conclusion, it seems likely that John Polkinghorne's contribution will continue to stimulate the interplay between science and theology as this is extended into the creative arts and humanities, thus improving the general framework of understanding for theological discussion in both academy and society – for what David Ford has called "high-quality theologically informed attention" to issues in "politics, law, economics, the media, education, medicine, and family life". But perhaps the main significance of his writings lies in the intellectual liberation they can bring to some who, like Anthony Monti, are willing to search for understanding through and through. As Monti explains, it was largely through JP's science-and-theology ideas that he eventually realized he could "embrace orthodox Christianity without having to commit intellectual suicide."

REVIEWS

Willem B. Drees, *Religion and Science in Context: A Guide to the Debates*. Routledge, 2010; paperback, pp. 168, ISBN 978-0-415-55617-0, £16.99.

REVIEWED BY KATHERINE MANLEY FROST

Those who are aware of Willem B. Drees' work will be familiar with many of the arguments in this book, which is a reflection on the relationship between science and religion. There have been many works focusing on this relationship, including arguably one of the most important provided by Drees himself in *Religion, Science and Naturalism* (1996). Here, the reader is provided with Drees' characteristically strong analytical, intelligent, and sceptical approach to the topic. He argues that a lack of careful consideration of contexts, purpose, criteria and views of what religion is, has left 'science and religion' with little in the way of consensus, with its academic credibility remaining marginal and with limited impact on theology and religious communities. With an aim to rectify this he provides such a consideration in the first four chapters, leaving the final chapters for his reflections on what he describes as three major domains of 'religion and science': 'mystery in a world made intelligible by the sciences'; 'morality in a world of facts'; 'and meaning and identity in a world of matter' (p. 2).

Drees criticises authors who focus on theological content and metaphysics at the expense of contexts and interests. Identifying fear of 'secularization' as the most prominent context for reflections on 'religion and science', which he views as a *negative* and *defensive* agenda, he provides a strong argument for the alternative context of pursuing truth and

combating 'socially consequential nonsense' (p. 6), such as astrology and ineffective therapies.

Drees uses contemporary examples to demonstrate the purposes of reflections in 'religion and science'. He takes these to be apologetics, gaining authority within religious traditions, and the appeasement of perceived challenges to identity and moral life. An enlightening discussion on apologetics (used to both justify the value of science to religious people and that of religion to the more scientifically inclined) includes the clear example of the differences between America, with its widespread sentiment against evolution and scientific elites, and a more science-minded Europe, demonstrating 'science and religion's' dependence on audience and context.

Authors also need to argue about the truth and plausibility of ideas, for which science is a source of insight. Drees examines scientific knowledge, stating that in respect of the questions for which science is adequate, 'science is more adequate than any human alternative' (p. 46). Science is about reality, but its theories are not straightforward depictions of reality. Thus, 'one cannot move easily from scientific theories to metaphysical conclusions' (p. 46). Drees suggests that metaphysical and religious convictions should be looked at in relation to the science that is most at odds with them, as this provides the best opportunity to gain credibility.

Drees attempts to help authors gain plausibility in an age of secularization and distinguish 'sense from nonsense' (p. 9), through his 'Ten Commandments' (pp. 47-62). This list of criteria is about respecting the differences between science and other endeavours; 'appreciating the best available insights in various domains, without claiming that epistemic support transfers easily from one domain to another one' (p. 62). They provide a guide for reflections on 'religion and science', drawing attention to some pitfalls that could undermine the credibility of an argument.

According to Drees the lack of consensus in 'religion and science' is over particular beliefs, but also the character of religious faith. He discusses what 'religion' might be, who defines it, and the insider-outsider problems in the study of religion. Drees views theologies as 'packages': an integration of worldviews and values. He presents a scheme in the form of a helpful circular diagram (p. 80), differentiating between intellectual integration and 'life as lived'. Whilst stating that theological reflections cannot be 'totally independent from modern knowledge and moral discourse' (p. 84), he suggests that science, its philosophical interpretation and morality can exist without theological reflection.

For Drees religion-and-science 'has to be philosophical' (p. 76), in the sense of dealing with an outsider's view of religion, human nature and the world, its meaningfulness and value. Philosophy of religion stands between 'insider' and 'outsider' perspectives. One should 'attempt to think through the truth and value *of* religion with the best available truth *about* religions' (p. 76), engaging in religious reflection with a perspective that is external to religion. In chapters 5-7 Drees attempts this.

Reiterating his commitment to the naturalism seen in previous works, Drees looks to limit questions to restrict naturalism to the sphere of the natural world. This leaves the possibility of theism, whilst not *requiring* it. He states three options that fit his robust naturalistic interpretation: *naturalistic theism*, *religious naturalism* and *serious agnosticism*.

Many see theistic naturalism as an oxymoron, holding that a theist must accept the presence of supernatural entities in the world, for example influences from divine action. Drees refers to R.J. Russell's proposal that allows for divine action *within* the flexibility and indeterminateness of natural processes, found particularly at the quantum level. He describes it as a 'serious proposal' (p. 95) because Russell seeks to base his approach in discoveries made by science. He questions

Russell's theory, but the fact that it is considered at all is surprising given Drees' commitment to naturalistic descriptions of phenomena. This demonstrates how Drees' philosophical approach allows him to develop his ideas as new understandings emerge and new theological projects develop. Perhaps Drees' third position of the '*serious agnostic*' is less controversial in its relation to naturalism.

Drees then looks at morality. He suggests that biological explanations allow us to distance ourselves from any innate tendencies; through abstraction, generalization and universalization we can articulate core elements of judgments that transcend the immediate situation and persons involved. These core elements could be considered *values* or at least approximates of values (p. 133), indicating how values might be incorporated in a worldview nourished by the sciences without degrading them to nothing but interests or other empirical facts. This view of values may also permit the articulation of dissonance between ideals and realities and thus allow us to value engagement with reality when it draws upon science and technology. Drees correctly identifies human action, seen as 'co-creation', as allowing for human responsibility and creativity. Such theological projects are based on engagement with justice and love, where the central theme is '*transformation*', and science and technology are sources of transformative power.

For Drees the reality of suffering and evil persistently challenges arguments that seek to uncover *consonance* between scientific knowledge and theological convictions. Drees convincingly argues that consonance needs to be *constructed*, '... both in the intellectual sense that we need to change our ideas in order to make them 'fit' together and in the ethical sense that harmony needs to be constructed by changing this world' (p. 118). Whether it is necessary, however, to move away from a 'constructed consonance proposal', as explored by Drees in *Beyond the Big Bang: Quantum Cosmologies and God*

(1990), and replace it with Drees' now preferred phrase '*creative dissonance*', may need further discussion.

Many would regard Drees' naturalistic view as problematic, as religious or theistic naturalism does not appear to deliver an account that is ultimately adequate to the specific claims of theistic religions. This is not, however, what Drees is aiming for. He proposes to understand religion and non-religion views as ways of holding together a vision of 'the way the world is *and* the way the world should be' (p. 76). As science enables us to describe and explain large segments of reality, it may be good to engage in stories that integrate current scientific understanding with existential concerns. Drees argues that stories need to connect to 'life as lived' – where they have meaning (p. 139). 'Old-time religion' may be a valuable resource of wisdom, yet we have to live with those religions in a world understood and functioning differently due to science and technology. For Drees the best way to proceed with images and concepts provided by religious traditions is to consider how these images functioned for humans in their original contexts. Thus, one can attempt to develop new models and images which are credible in our time; in the context of all else we take seriously – including the sciences. To conclude chapter 7 Drees attempts to articulate his core ideas in a poetic narrative.

The epilogue reconsiders some of the arguments from the main text, and introduces some issues for further research, as well as the concept of the 'glocal' (pp. 148-150). According to Drees one engages with science and religion in a globalising world; processes are local in the context of the global. Drees suggests that '[t]his interaction between the specific and the general might provide a good framework for considering debates in religion and science' (p. 149).

I would allow for more positive overlap between the disciplines than Drees' position accommodates. Religion and science both display a sort of 'realism', as attempts to describe

the same reality (possibly a 'weak form of critical realism' such as that described by J. Wentzel van Huyssteen, cited in Southgate 2005: 18). Perhaps there is more *possibility* of discernible harmony or consonance than is admitted by Drees even if these are 'constructed' as science and theology move on.

Furthermore, Drees' analysis is asymmetrical in its treatment of 'religion' compared to that of 'science'. He scrutinises 'religion', emphasising its fallibility and its grounding in social practices, experiences, traditions and so on. In contrast, his analysis of science is limited in not fully acknowledging the extent to which it is affected by different components. Drees consciously promotes modernist epistemic values (see p. 9). Despite referring to the 'local' in relation to science, his overall view appears to promote it as a superior form of rational thinking, compared with a more subjective experience found in religion. Religion is forced to retreat into symbols, images and concepts expressing experience. For Drees religion is the transformation of individuals, arguably short-circuiting some of 'what religion is', as it appears to be reduced to ethics. His analysis of science, however, pays too little attention to the position that the arguments, reasons and value judgements employed by scientific communities are fundamentally grounded by social practices (see van Huyssteen, 1998: 17). Such an understanding appears to reduce interpretations of science to the local context from within which one operates, which for Drees is a problem with postmodern thinking. He argues that the plurality of particulars brings with it 'a splendid isolation in homely ghettos' (p. 9). Perhaps, however, an affirmative reading of postmodernity could leave scope for intelligible cross-disciplinary conversations. Reflections on 'religion and science' can work if, as van Huyssteen suggests, we 'contextualise it to specific issues in specific sciences and

specific kinds of theologies in specific religions' (Southgate et al, 2005 p.xxii; also see van Huyssteen 1998).

Despite the opportunity for disagreement on certain premises, Drees' arguments are valid, intelligent and perhaps more credible for those outside the discipline than discussions beginning from revelation. Although I am sympathetic to Drees' position on credibility, the extent to which one can have an authentic view as an 'outsider' is still open for discussion. His attempt at a poetic narrative is helpful in conveying meaning consistent with scientific knowledge as well as with religious belief. This book acts as a sophisticated criticism of more optimistic approaches to interaction between science and religion. I would recommend it to all those engaging in the subject, as a reminder of the importance of an awareness of context to authors and as an introduction to Drees' analytical style.

Drees, Willem B. (1990) *Beyond the Big Bang: Quantum Cosmologies and God* (La Salle, IL: Open Court)

Drees, Willem B. (1996) *Religion, Science and Naturalism* (Cambridge: Cambridge University Press)

Southgate, Christopher (ed.) (2005) *God, Humanity and the Cosmos* (London & New York: T&T Clark International)

Van Huyssteen, J. Wentzel, (1998), *Duet or Duel? Theology and Science in a Postmodern World* (London: SCM Press)

Michael N. Marsh, *Out-of-Body and Near-Death Experiences: Brain–State Phenomena or Glimpses of Immortality?* (Oxford Theological Monographs). Oxford University Press, 2010; pp. 336; hardcover, ISBN 978-0199571505, £63.00.

REVIEWED BY PETER COLYER

Out-of-Body Experiences (OBE) and Near-Death Experiences (NDE) usually result from a medical crisis and loss of circulation. Out-of-Body Experiences (OBE) occur when the subject-centre of the person concerned appears to leave the physical body and float above the scene, usually in the near vicinity. The subject returns to the normal body-state and consciousness with memories of the experience, and descriptions of his/her disposition from an external viewpoint. OBE can be the result of medical trauma, the use of drugs whether clinical or recreational, and even through the effects of alcohol.

Near-Death Experiences (NDE) commonly involve some form of encounter with a non-earthly, 'spiritual' or 'heavenly' world. From a theological perspective, NDE present the more interesting cases. Common features of NDE (though Marsh is at pains to point out that NDE are by no means uniform) include an approach to the non-earthly world via a tunnel with light at the end, emergence into an atmosphere of peace and contentment (frequently marked by symbols of similar experiences on earth, such as flowers and flowing streams), and encounters with heavenly beings, God or Christ, or with deceased relatives. Communication with these beings is in some cases verbal, while in other cases communication is through some form of non-verbal feeling or understanding. After experiencing the delights of the 'heavenly' location, the subject is sent back to earthly life because of responsibilities still to be completed there.

For many people, NDE offer a helpful, even if not rigorously thought-through, confirmation of the reality of a spiritual world, of the truth of an afterlife, and even of the existence of God. Marsh, however, brings his professional medical experience to bear on the issue, and applies the rigorous thought that many of us have avoided. He concludes that OBE/NDE are entirely explicable in terms of the neurophysiology of the brain, especially focusing on the period when the brain is re-emerging into consciousness following serious assaults occasioned, for example, by accident or by medical conditions such as cardiac arrest or brain tumour. In the terms of the felicitous sub-title of his book, OBE/NDE are definitively “Brain –State Phenomena” and not “Glimpses of Immortality”.

Marsh’s work, however, is not another atheistic-materialistic dismissal of all religious or spiritual views. Marsh places his scientific conclusions within a framework of traditional Christian belief and, as I shall show below, even finds reasons in Christian theology to support his view that OBE and even NDE should be understood as activities of the brain and not insights into immortality. Neither, of course, does Marsh deny the reality of the experiences and the memories retained by the subjects – indeed he recognises the life-improving value of NDE, even while retaining his neurophysiological explanation.

The classical case data for OBE/NDE are provided by five authors in eight publications since 1976, supplemented by an interesting example from the English 8th century monk Bede. Following detailed assessment of this material, Marsh concludes that it has not been handled in a scientifically reliable manner (admittedly difficult in medical situations in which the saving of life might have been the primary consideration). The selection of control groups and the collection of relevant data (for example, on pre-OBE/NDE religious views) is virtually impossible in a field in which

experiences are unpredictable. Marsh also shows that the reports provided by those experiencing OBE/NDE have been seriously manipulated or reinterpreted by their analysts to fit with the religious or medical preconceptions of the analysts themselves.

Marsh assembles evidence from scientific studies of the brain and from extensive research into sleep and dreaming. The use of word counts, based on the relationship between observed brain behaviour and subsequent narration of the dream, has helped to establish the duration of dream sequences. The same principles can then be applied to the narration of NDE. Marsh concludes that these experiences are short-lived, compressed into a few seconds or at most a few minutes, and are most likely to occur in the moments before the brain returns from its unconscious to its conscious state. This helps to explain the sense of duty and responsibility with which the subject returns to his/her conscious earthly life. The brain must be "alive" during NDE otherwise it would be impossible for memories of the experience to be retained and reported. The suggestion by some of the classical analysts that NDE may occur when the patient, including the brain, has actually died, and that the return to earthly life is a return to life in every sense, is robustly rejected.

It should be mentioned that Marsh introduces information from neurophysiology that will be beyond the grasp of some readers; he has a slightly annoying habit of introducing highly specialised language or words without explanation or even, in some cases, without demonstrating the relevance of a no-doubt erudite point. One hopes that some readers will be additionally persuaded by this surfeit of material.

In his final four chapters Marsh brings a mature theological outlook to bear upon his scientific conclusions. In particular, he identifies three aspects of traditional Christian belief and theology which undermine the claims of NDE to be genuine experiences of 'heaven'. First, the whole weight of the

descriptions of NDE is on the continuity of the 'soul' and the individual's entry into heaven. The body is left behind, it may even die during the process, but the individual 'soul' experiences the presence of the divine or encounters with deceased relatives (before its return to earthly existence). This, argues Marsh, is inconsistent with the traditional Christian emphasis on the importance of the resurrection of Christ as the guarantee of a general resurrection. That resurrection will be of cosmic significance, not limited to the immortality of an individual being. While recognising the many unknown and unknowable aspects of the Christian theology of resurrection, Marsh holds that the distinction between resurrection and the immortality of the individual soul, weighted in Christian belief towards the former, is sufficiently strong to undermine the claims of NDE for genuine spiritual experiences.

Second, Marsh argues that those who have experienced NDE do not return with information about 'heaven' or the afterlife of relevance or helpfulness to other people. The individual him/herself may be greatly helped through the experience, and their relationships with other people may be changed as a result, but there is no particular revelation of the divine which has to be shared. This is in contrast with other mystical experiences reported in the history of Christian spirituality – mystical encounters with the divine are always difficult to describe and must be expressed in metaphorical language, but they usually convey some meaning to others who did not share the elevating experience.

Third, the picture of the afterlife conveyed by NDE is not particularly profound or worthy of the Christian understanding of God. Many of the features of 'heaven' are decidedly anthropocentric or geocentric (familiar friends and relatives, pleasant views and features), and are culturally related to the expectations and memories of the person experiencing the NDE. Images of God and Christ or other heavenly beings are more likely to reflect recollected Sunday

School teaching than probable eternal divine realities. Is poor Dad condemned to an eternity in heaven still wearing the old trousers and cardigan by which he was recognised in the NDE?

Marsh concludes, "When it is recognised that a wholly neurophysiological explanation is possible, the other-worldly edifice constructed by the authors of [OBE/NDE] literature is seen to be the more dependent on authorial presuppositions, weakening considerably any claims on truth" (p. 260). Ironically, however, Marsh allows that the God of grace may use these totally neurophysiologically explainable events to help and encourage some of his children.

This highly original and ground-breaking book, though sometimes difficult, will challenge many assumptions about the religious value of out-of-body and near-death experiences. It therefore deserves a wide readership.

William P. Brown, *The Seven Pillars of Creation – The Bible, Science and the Ecology of Wonder*. Oxford University Press, 2010; pp. 334; hardcover, ISBN 978-0199730797, £17.99.

REVIEWED BY STEPHEN B. DAWES

Both Richard Dawkins and his Christian Fundamentalist *bêtes noires* perpetuate the nonsense that there is one biblical creation 'account'. The briefest serious look at the Hebrew Bible/Old Testament reveals that there is more than one treatment of creation in its pages, and a look at the New Testament adds others. In this superb book, William Brown does Hebrew Bible/Old Testament studies, to say nothing of theological and ecological ones, a great service by identifying seven such treatments, although, it must be said, the subtitle of the book is somewhat misleading as the book does not

examine the New Testament's contribution to the Bible's creation perspectives, nor that of the Apocrypha. From the very personal preface to the concluding seventy pages of notes and bibliography, the tone is one of grateful wonder at creation as Brown works at interpreting the data of both science and biblical imagery, very well aware of the abuse of both in the culture wars which have bedevilled the relationship between science and religion in the past century.

The first introductory chapter ('From Wonder to Wisdom') sets the scene for the book's journey in biblical interpretation and both justifies and explains the three steps used to explore each of the seven Hebrew Bible/Old Testament cosmologies it identifies: first to elucidate the text's perspective on creation within the text's own contexts, second to associate that perspective with the perspective of science, and third, to 'appropriate the text in relation to science and science in relation to the text'. This enables Brown to work on the 'hermeneutical points of contact', 'virtual parallels' or 'fruitful interactions' between these seven perspectives and the insights and issues of contemporary science, and to sum up his insights in two columns in Table 1 in the appendix under the headings 'Biblical Text' and 'Scientific Understanding' (pp. 241f). Equally useful is Table 2 which offers a summary of each of the seven perspectives in three columns under the headings of 'God as Creator', 'Character of Creation' and 'Character of Humanity' (pp. 243f).

Given the common hermeneutical abuse of the Bible which seeks to harmonise 'the Genesis creation account' and the 'findings of science' by allegorising the former to fit with the overall schema of the latter, Brown's methodology here could be open to question. Are his steps two and three really justified? Is it such a good idea to attempt to associate the perspectives of those ancient biblical pictures of creation with the perspectives of science? Alert to these and most other issues in contemporary hermeneutics, however, chapter 1

addresses the question and concludes not simply with an emphatic 'yes, we can make this attempt' but also with the imperative that we must so do for Creation's sake and God's. Then, after rigorous interpretative work throughout, the concluding chapter ('The God Allusion: Creation as Consciousness-Raiser') returns to the question in a careful, nuanced and convincing way.

After a second introductory chapter which explores Ancient Near Eastern approaches to Creation as the point of departure for the biblical material, and picking up on the 'seven pillars' of Proverbs 9.1, the core chapters identify and explore the seven 'ways' of creation or seven separate and incomplete traditions of creation in Brown's shortened Bible. Each chapter, often with a neatly witty heading and always with two or three apt quotations, follows its three-step programme. The seven chapter headings are: The Cosmic Temple: Cosmogony according to Genesis 1.1-2.3; The Ground of Being: The Drama of Dirt in Genesis 2.4b-3.24; Behemoth and the *Beagle*: Creation according to Job 38-41; The Passion of the Creator: The Manifold Nature of Creation in Psalm 104; Wisdom's World: Cosmos as Playhouse in Proverbs 8.22-31; The Dying Cosmos: Qoheleth's Misanthropic Principle (Ecclesiastes 1.2-11 and 12.1-7); and the Fabric of the Cosmos: The Emergence of New Creation in 'Second Isaiah' (excerpts from Isaiah 40-55).

The end result is an awareness of the Bible's splendidly rich collage, with both detail and overview illuminated time after time by Brown's considerable skill as a biblical interpreter, set side by side with observations and perspectives from a variety of different branches of science, which move the reader to awe and wonder at it all, and to reflect on the 'creation' issues facing humanity today. The topic is contemporary and urgent, the biblical exegesis is stimulating throughout, and whilst this reviewer has to take the science on trust, its presentation is accessible. The book is thoroughly

readable, challenging, passionate and urgent. My only quibbles are the strange omission of the *Chaoskampf* picture from the list and the collage (Psalm 74.12-17 and Isaiah 51.9-10 get brief mention, but Psalm 89.5-14 does not even appear in the index) and to be true to its subtitle, that the book needs a supplement to include the New Testament creation material. This is one of those rare books in which the rave reviews of the great and good in the blurb on its jacket are thoroughly justified by what is found between its covers.

James Hannam, *God's Philosophers: How the Medieval World Laid the Foundations of Modern Science.*

Icon Books, 2009; pp. x + 435; hardback, ISBN 978-1-84-831070-4, £17.99.

REVIEWED BY JOSEPH WOLYNYIAK

The back cover of *God's Philosophers: How the Medieval World Laid the Foundations of Modern Science* bills the work as 'a thrilling narrative of scientific discovery that rewrites the intellectual history of the middle ages'. This seems to be a rather tall order for this text to satisfy, not least because of the oxymoronic coupling of 'thrilling' and 'history' in the same sentence. Yet, author and independent scholar James Hannam comes close to living up to the publisher's hyperbole in this ambitious project, comprising twenty-one sprawling chapters spanning from the fall of the Roman Empire in the 5th Century to the Galileo Affair in the 17th. The narrative begins with the collapse and rebuilding of the Roman Empire (highlighting the role of technology therein), moves to the Western recovery of Greek learning (and the Church's concern therewith), then to an overview of medieval medicine, alchemy, astrology and (later on) Renaissance magic and human dissection. The accomplishments of Roger Bacon, Richard of Wallingford,

Thomas Aquinas, John Buridan, Nicole Oresme, and Thomas Bradwardine are brought into conversations with the wider contributions of those at the emergent universities in Oxford and Paris; while the shifting tides of Renaissance invention, humanism, and the Protestant Reformation are brought to bear on developments in science and technology. Copernicus, Kepler, and Galileo occupy the last third of the book.

There is a twofold aim that drives the project. Hannam seeks first to show how modern science and technology have medieval origins despite the fact that some in the academy and wider culture seem wedded to the notion that ‘nothing of any consequence occurred between the fall of the Roman Empire and the Renaissance’ (1). Hannam’s second and related objective is to challenge the idea that ‘the Church held back what meagre advances were made’ in medieval natural philosophy (2). Put this way, the book’s objective seems more humble – and achievable – than the aggrandized claim that this text ‘rewrites the intellectual history of the middle ages’. This book is not, after all, a *magnum opus* of intellectual history. Nor is it intended to be.

Towards the end of the treatise, Hannam notes how Galileo’s famed *Dialogue Concerning the Two Chief World Systems* skirts over some key facts and figures one would have expected to encounter. The apparent oversight is, however, explicable in light of the fact that the fateful manuscript ‘was a popularisation of the issues intended to bring the advantages of Copernicus to as wide an audience as possible’ and as such was not intended to be ‘a masterwork of science’ but ‘a first-class piece of rhetoric aimed squarely at non-experts’ (323). There is a certain irony here in that *God’s Philosophers* seems also to be oriented towards an amateur audience. This is arguably the book’s strength, as there are few laymen’s historical narratives of medieval natural philosophy approaching this breadth and quality. Yet again, it may also be

its weakness as Hannam indulges some of the liberties that the genre encourages (or at least allows).

The scope of the book does not uniformly lend itself to a rich depth or scholarly nuance. The text is dotted with a few leaps in judgment and insufficiently founded speculations, along with the occasional *obiter dictum*. On the whole, these are relatively minor infelicities. Yet, these criticisms notwithstanding, the episodic narrative – whilst deftly weaving absorbing biography and otherwise esoteric bits of intellectual history into a coherent story – prompts some more serious questions regarding the cumulative effect. As one episode bleeds into another, one begins to wonder what it all amounts to. It need not ‘amount to’ anything per se, beyond a foray into several key counterpoints challenging prevalent hegemonies regarding the medieval era. Still, there is the sense that the narrative is trying to lend itself to more than just a case-by-case refutation of common cultural myths, but *also* to offer a positive apology for a certain coherent trajectory from medieval natural philosophy to the emergence of modern science – such that whole is greater than the sum of its parts. The concluding chapter (itself really more a postscript) helps to clarify how it all ties together, suggesting that in all there are ‘four cornerstones’ comprising the medieval foundation for modern science: institutional, technological, metaphysical, and theoretical. This is an especially interesting claim; yet, standing at just six pages, the reader is left wanting it to be fleshed out in much greater thematic detail.

Nonetheless, one must bear in mind that this is not supposed to be an end-all academic tome. The medium and message are pitched at a generalist audience, and this may well entail a departure from certain scholarly quirks and conventions. All in all, Hannam offers an equally informed and intriguing read of an era usually maligned or ignored by the general populace. This noble effort will undoubtedly help stem misconceptions as the beginner encounters a medieval

world remarkably more similar to our own than the mythical 'Dark Age'. The engaging prose and attention to both persons and ideas in their respective contexts will help point the eager neophyte in the right direction. Helpful supplements – including a map of medieval Europe, a chronological timeline of critical events, glossary of key figures, assorted illustrations, and suggestions for further research – will likewise aid the dilettante. This book will be a nice complement to David Lindberg's *The Beginnings of Western Science* – especially for those who might find the later work imposing (or, as Hannam puts it in his suggestions for further reading, 'rather dry'). *God's Philosophers* has a definite role to play in this niche.

This text may not become a fixture in the classroom. However, for any and all who assume science simply dropped out of the sky or emerged out of nowhere – arising from the chance sparks of genius and foresight among a select few great men in the modern era – this book represents a good first step in dispelling fallacious folklore. It is not a panacea, but it is a start.

Jitse M. van der Meer and Scott Mandelbrote (eds.), *Nature and Scripture in the Abrahamic Religions: Up to 1700*. 2 vols. Brill, 2008 (Brill's Series in Church History, vol. 36); pp. 362 and 410; hardcover, ISBN 9789004171916, €195.00; *Nature and Scripture in the Abrahamic Religions: 1700 – Present*. 2 vols. Brill, 2008 (Brill's Series in Church History, vol. 37); pp. 296 and 606; hardcover, ISBN 978 90 04 171923, €195.00.

REVIEWED BY JOHN HEDLEY BROOKE

References to nature as a “book” have served religious writers well because the metaphor may underwrite an ultimate harmony between knowledge of nature and knowledge derived from Scripture. Having the same author, the two books cannot conflict – when properly interpreted. But there’s the rub. What hermeneutic principles should govern the reading of Scripture and of nature? Which takes priority when conflicts do arise? Should the interpretation of nature be influenced by the interpretation of Scripture, and/or vice-versa? Might there be analogies between the respective methods of interpretation?

These are questions with a long history, recurring in all three Abrahamic religions. Answers to them have changed over time in different institutional and political contexts. While the majority of the thirty nine essays enshrined in *Nature and Scripture in the Abrahamic Religions* relate to different Christian traditions, several are devoted to the history of Jewish and Islamic engagement with the same quintessential problem: how to achieve authentic interpretations of nature and of the sacred text that do not violate each other. This majestic historical project had its inception at a conference held at Redeemer University College, Canada, in 2005. In their introduction, Jitse van der Meer and Scott Mandelbrote explain

that the idea was to bring together historians of science and historians of exegesis in an unprecedented collaboration, to explore the ever-changing symbiosis between interpretations of the *word* and of the natural *world*. The focus is therefore on “specific strategies of interpretation and on hermeneutical principles that shape knowledge of God and nature in interaction with contextual influences.” The chronological range is extensive – from the exegetical principles of the Church Fathers (Augustine in particular) to the issues of today.

Distinguished contributors dispel the assumption – increasingly common in a secular age – that the relationship between the interpretation of nature and of Scripture is reducible to the inexorably corrosive effects of the former on the latter as scientific progress has gradually undermined the authority of sacred texts. Indeed many of the essays explore a contrary dependence: the transformation, particularly in earlier centuries, of ideas about the created world as a consequence of innovative styles of scriptural exegesis. Readers of this review are likely already to be familiar with Peter Harrison’s thesis, in *The Bible, Protestantism and the Rise of Natural Science*, that the move from symbolic and allegorical readings of biblical texts to the more literal, univocal modes of interpretation favoured during the Protestant reformation, catalysed the scientific movement of seventeenth-century Europe by de-mystifying nature and creating the space for a science dealing in factual particularities rather than natural symbols. This would be one example (reaffirmed by Harrison here, though also qualified in essays by James Bono and others) of an interdependence that could take many forms. Bono himself explores another connection documented by Harrison – the framing of seventeenth-century discussions of experimental methods by re-interpretations of the “Fall” narrative that promised partial restoration of a pristine Adamic knowledge. Many chapters provide examples of events in nature receiving religious meaning from

interpretations grounded in Scripture. For the New England divine Jonathan Edwards, “the whole universe, heaven and earth, air and seas” were “full of images of divine things, as full as a language is of words.” The Bible was sometimes used to adjudicate between competing theories when the empirical data were inconclusive. Events recorded in Scripture were also used to structure otherwise naturalistic histories of the Earth, as in Thomas Burnet’s *Sacred Theory of the Earth*. During the scientific revolution biblical language also facilitated the *communication* of theories. Such examples cannot obscure the negative role of scriptural idioms in the critique of innovative science, as in Philip Melanchthon’s and Tycho Brahé’s resistance to Copernican astronomy, in the Dutch Calvinist Gijsbert Voet’s censorious dismissal of Descartes, and in later repudiations of evolutionary biology.

If these are examples of interpenetration in the interpretation of nature and of Scripture, another strand running through many of the chapters concerns the pressures that led to separation – both to liberate the sciences from religious interference and to protect scriptural authority from aggressive scientific incursion. In early-modern Europe there was frequently recourse to a principle of biblical “accommodation”, which, with many modulations, can be traced from the Church Fathers, through the scholastic theologians of the medieval period, surfacing in figures as disparate as Calvin and Galileo, and proving indispensable for protagonists of Copernican astronomy. Because the language of Scripture had been “accommodated” to limited human capacities, it was not to be regarded as conveying scientific information that would have been opaque to the vulgar and prejudicial to its transmission of spiritual truths. The conclusion drawn by Calvin was that those who would learn astronomy should not turn to the Bible for instruction; the conclusion drawn by Galileo was that biblical authority did not extend to the suppression of truths demonstrated by

reason and through the senses. In an important insight, the editors observe that, while this principle of accommodation could be an attractive resource, problems invariably remained concerning the scope of its application.

A particular strength of these volumes lies in the depth of analysis to which the concept of biblical accommodation is subjected, notably in two fine essays by Stephen Snobelen who stresses its flexibility in surviving the transition from Ptolemaic to Copernican astronomy. None of the contributors shirks the complications. In van der Meer's reflections on the French palaeontologist George Cuvier, the story becomes particularly intricate because "even if Cuvier moved away from using Bible passages in geology directly, the Bible could still function indirectly by providing a general perspective on nature which could be translated into metaphysical beliefs that shape his geology and natural history."

Many would doubtless be happy if the documentation of such indirect influences could be compressed into a simple historical mould. But, in his brilliant introduction to the post-1700 volumes, Mandelbrote explains why we must be ever vigilant in our suspicion of linear histories driven by ideological preferences. His thesis is that hermeneutics as an activity takes place within a community of readers and is unlikely to have a unitary character in any one place or time. Such a message, with its privileging of historical diversity, can be daunting to the non-specialist. It would, however, be a great pity if these fine volumes were allowed to languish on library shelves. There is so much to savour that cannot be summarised here, including Tamar Rudavsky's exposition of a recurring struggle between philosophical and scriptural conceptions of time and creation in early-modern Jewish philosophy. In the post-1700 volumes, in which responses to Darwinian evolution unsurprisingly loom large, we are reminded by Ted Davis and Elizabeth Chmielewski why biblical creationists spurn the principles of accommodation

that have enjoyed approval in more mainstream Christianity. In many ways, however, the most compelling aspect of the entire project is the impetus given to comparative studies both within and across the Abrahamic faiths. A “unique feature” of Judaism is identified by Menachem Fisch in its sharp differentiation between the texts deemed to be sacred and the understandings achieved through their study, which are characteristically not judged final or binding. An absorbing contrast is drawn with Muslim societies where, in Qur’anic exegesis, principles of accommodation have not generally found favour and where, as Marwa Elshakry observes, pressures to assert the modernity of one’s religion have encouraged the practice of finding prescient instances of scientific knowledge within the Qur’an. Her chapter has an ironic thrust in that the urge to reconcile science and Scripture in the Muslim world began as an attempt to show the ease with which Islam, in alleged contrast to Christianity, could achieve the conciliation. Bibliographically immensely rich and a tribute to serious historical scholarship, these volumes constitute a major work of reference and a stimulus to further comparative study.

John Quenby and John MacDonald Smith (eds),
Intelligent Faith. Winchester, UK: O Books, 2009; pp.
330; paperback, ISBN 9781846942297, £16.99.

REVIEWED BY BETHANY SOLLEREDER

“Some books are meant to be tasted, others to be swallowed, and some few to be chewed and digested.” Francis Bacon’s alimentary metaphor is apt for this diverse collection of essays. *Intelligent Faith* strikes the reader as the literary equivalent of an appetizer sample tray: a little of everything but not too much of anything. The book contains

seventeen papers and lectures which are gathered loosely around the central theme of refuting the Intelligent Design Movement (IDM). Still, there is a massive amount of diversity: history, cosmology, hermeneutics, social theory, quantum mechanics, evolutionary biology, and theology all find their way into this interesting volume.

In reality, there may be too much diversity. While the main purpose of the book is to show that “Intelligent Design is an unproductive dead end” (back cover), only the initial chapters seek to explain and disprove or disarm major tenets of Intelligent Design Theory (IDT). The later chapters merely mention the IDM in passing, or not at all, while demonstrating support for theistic evolution. While vigorously advancing evolutionary principles, the book largely fails to convince the reader of specifically why one should not embrace IDT. After the first three chapters, there are few sustained arguments against the merits of the IDM.

In terms of the audience, *Intelligent Faith* seems to miss its mark. Intelligent Design Theory is most prominent amongst conservative evangelicals. IDT theorists hope to overturn the course of modern science, which they see as threateningly secular and materialistic. In the words of the now infamous Wedge Document, the IDM seeks to “reverse the stifling dominance of the materialist worldview, and to replace it with a science consonant with Christian and theistic convictions.” In order to reach the conservative audience involved in this endeavour, it is destructive to hold to positions that would immediately exclude you from their ranks. It is surprising, then, to find several articles in the book hold positions that would be strongly resisted by most evangelicals. John Quenby’s article, for example, finds that Whitehead’s idea of Process Theism is fertile ground for exploring the relationship between God and the universe (pp. 150-153). While this might be true, the mention of Process Theism (which has been adamantly rejected by most conservative scholars) is likely to

alienate the intended audience. So too, would some of the more careless theological language. Consider Quenby's statement that in the future "Darwin's *On the Origin of Species* will be thought of being a profoundly theological book extending revelation more traditionally found in the bible and the Church's teaching" (p. 137). Without any nuance between types of revelation or authority of source, comments like these will cause the conservative reader to pause. These types of comments are rare, but they will only add fuel to the fire for those interested in discounting an evolutionary creation.

Despite these drawbacks, there remains a great deal of merit to *Intelligent Faith*. As a primer in the current issues of science and religion, this book is excellent. It contains first-rate scholarship in a wide variety of disciplines and the language is accessible enough for the non-specialist to follow along easily. It introduces the reader to the basic assumptions of scientific inquiry and to elementary models in paleontology, cosmology, and quantum mechanics. There are three exceptional chapters looking at the nature and intention of the Genesis narratives, showing clearly and convincingly why a literalistic reading of Genesis is neither true to the original authorial intention nor to the nature of revelation. Still, these chapters relate more to the concerns of young-earth or progressive creationists than they do to the hermeneutics of most IDT advocates. One is left wondering, once again, for whom the book was intended. The lack of central focus negatively affects one's overall impression of *Intelligent Faith*, an impression that is strengthened by a host of editorial errors. Punctuation problems, repeated paragraphs and spacing errors make the reading less fluid than could be desired. However, this should not take away from the fact that many of the essays are absolutely excellent and are written by top scholars in each respective field. Simon Conway Morris speaking on the theological implications of evolutionary convergence, R.J. Berry writing on Darwin's historical legacy, and Anthony Phillips exploring the nature of the Genesis

narratives are just a few examples. Moreover, the explicitly Christian approach taken by these eminent scientists and theologians is a tacit but powerful testimony to the compatibility of science and religion, negating the need for positions like Intelligent Design which compromise scientific discovery by simply stopping the process of inquiry. By finding instances of “irreducible complexity,” proponents of IDT essentially argue that there is a gap in our knowledge of development which cannot be filled because an intelligent designer put together some systems in one fell swoop, bypassing regular evolutionary development. Yet further studies into the IDM’s examples of irreducible complexity, such as the bacterial flagellum, have brought several productive lines of research to light, for example the type III secretory system for protein injection which has been considered a possible evolutionary precursor to the flagellum. If the claims that the flagellum was irreducibly complex had not been challenged, these lines of research may never have been pursued. In the book, Andrew Robinson and Christopher Southgate investigate claims of intelligent design in relation to protein synthesis and the origin of life and R.I. Vane-Wright explores animal intelligence and the migration of monarch butterflies. Both subjects are open to claims of irreducible complexity, and thus a reverential cessation of study. In scientific research, at least, IDT really does lead to “an unproductive dead end” as the authors of the book claim.

Still, while *Intelligent Faith* investigates some of these arguments, the book’s organizational chaos fails to provide a sustained and penetrating critique of the Intelligent Design Movement. In this buffet of science and religion writings, some chapters should be carefully digested, while for others, a taste will be sufficient.

Ruth Bancewicz (ed.), *Test of Faith: Science and Christianity Unpacked*. Paternoster 2009. DVD "Does science threaten belief in God?", £7.00; Leader's Guide, pp. 125, ISBN 9781842276631, £12.00; Study Guide, pp. 96, ISBN 9781842276648, £2.50 (six for £12.00); Spiritual Journeys with Scientists, pp. 120, ISBN 9781842276617, £6.00; resource pack (DVD, book, leader's guide, 5 study guides) £30.00.

REVIEWED BY JOHN BAUSOR

As is well known, Richard Dawkins and a few other scientists beloved of the popular media have for some time been propagating (rather successfully) the notion that science and religion are totally incompatible. It is unfortunate that the same idea has also been adopted by a small but vocal minority of Christian leaders. These people are opposed in particular to the concepts of the earth being billions of years old, and of biological evolution, ideas which contradict their literalistic interpretation of the Bible. There is some evidence that such views are now growing in churches in the UK as well as in the USA, and it is regrettable that previously reputable publishers like IVP are now prepared to publish Christian diatribes against evolution such as *Should Christians embrace evolution?* (edited by Norman C. Nevin – see Review Article by Christopher Southgate in *Reviews* 55, May 2010).

As far as ordinary Christians in an ordinary church are concerned, science is not something which usually has much impact on their faith. Most ministers and church leaders have little science in their background, and are thus ill-equipped to raise the issue with their congregation; and they may well have little inclination to do so. So the conflict model of the relationship between science and faith can easily grow by default.

Test of Faith states in the introduction to the Leader's Guide that the aim is to help meet the enormous need in churches and parachurch groups for accessible materials on science and Christianity. The intention is to show that "there are many practising scientists who have a sincere Christian faith, even at the highest levels of academia", and to give a straightforward commentary on some of the important issues in science and faith. It should thus help to counteract the conflict model, and help Christians and others to a more balanced view.

The centre piece of this suite of resources, intended for use with small groups in churches and elsewhere, is the documentary on the DVD entitled "Does science threaten belief in God?" This is in three sections, concerned respectively with the interaction between science and the Christian faith (including origins), creation and evolution, and the nature of human beings (including ethical questions). It is of a very high quality, both technically and in terms of its content, and has input from a range of eminent scientists of faith such as Francis Collins, Simon Conway Morris, Bill Dembski, Sir John Houghton and John Polkinghorne. It involves imaginative graphics and backgrounds, using subtle images. It won the silver award in the 'Best Documentary' category at the IVCA Awards in 2009.

In addition to the documentary, the DVD also includes: a trailer for the course; nine short videos expanding on certain specific topics; 3 bonus interviews (plus transcripts); subtitles in six languages; the soundtrack dubbed into Farsi, Turkish and Arabic; and a range of extra resources.

The *Leader's Guide* gives details of how to use the documentary (87 minutes long in all) in a series of sessions (between three and ten) for a small group. It is easy to use, with a range of features designed to help leaders who have no scientific background. These include an overview of the course, suggestions on how to run the course (with alternatives), and tips on how to make it successful. The

provision of optional bonus sessions and in-depth sessions gives the leader great flexibility to match the extent and depth of treatment to the needs of a particular group. Detailed suggestions are provided for each session, with both introductory short questions on the content of the documentary and topics for wider discussion.

A series of Briefing Sheets is provided to give straightforward accounts of scientific material related to the documentary for leaders who have little background in science. Other appendices cover leading a discussion group, notes on the writers, biographies of those appearing in the documentary, an index and, remarkably, a list of relevant Christian songs. Overall, the Leader's Guide is a very well-constructed aid to enable any leader, with or without a scientific background, to deliver an effective small group course based on the documentary on the DVD.

The *Study Guide* (the content of which is included in the *Leader's Guide*) is intended for individual participants on the course, and is closely related to the documentary. It includes numerous questions, many of them open-ended (for example, "Where do we see God at work?", "What are the possible explanations for the existence of 'physical evil?'"), and provides biblical references which are relevant to various themes. It also prints the Briefing Sheets, and lists websites and books for further study.

The book *Spiritual Journeys with Scientists* contains ten autobiographical chapters, nine of them by scientists who appear in the documentary (including Francis Collins, John Polkinghorne and Alister McGrath), in which the authors relate their life stories to their reflections on science and faith. There is also a chapter by Ruth Bancewicz, the editor of the resources, giving her personal story and explaining how *Test of Faith* came about.

A website has been established (www.testoffaith.com) to support the resources and provide additional information.

From it youth materials can be downloaded (free) for use with 11-14 and 14-18 year olds, making use of the documentary. Resources for use in schools (at GCSE and A Level) to accompany the documentary are also available from the Stapleford Centre (www.stapleford-centre.org).

This suite of resources has been very carefully devised to an extremely high standard, and is well-suited to fulfil its intended role. It addresses all the important issues of science/faith in a simple but not simplistic way. It is to be hoped that it will come into widespread use. Whether it does so will depend upon suitable publicity being provided among churches in the UK, the USA and elsewhere.

Jay R. Feierman (ed), *The Biology of Religion: the evolutionary origins of faith and religion*. Praeger, 2009; pp. 301; hardcover, ISBN 978-0313364303, £34.95.

REVIEWED BY RICHARD SKINNER

Jay R. Feierman is a retired Clinical Professor of Psychiatry at the University of New Mexico, who has brought together contributions that explore religion as a natural phenomenon. Although the primary objective of the book is to understand better religion's evolutionary roots, the contributors also "hope that the collaborative effort between the biobehavioral sciences and religion ... will make at least a small contribution toward bridging the religious divide." This is an admirable aim.

The book is divided into a number of sections focusing in turn on 'Description of Religious Behavior', 'The Evolutionary History of Religious Behavior', 'The Development of Religious Behavior in the Individual', 'Causes of Religious Behavior', and 'The Adaptiveness of Religious Behavior'.

Religious behaviour is placed in a wider, socioecological context by Stephen K. Sanderson, who argues, *inter alia*, that the two predictors of religious evolution are the mode of subsistence technology and the presence or absence of writing and records. In other chapters, specific instances of religious behaviour are discussed, including ocular behaviour and the implied relationship between the devotee and his/her god (Thomas B. Ellis); “make-oneself-look-lower-or-smaller-or-more-vulnerable” behaviour during petitionary prayer, deriving from the submissive behaviour which appeases a stronger aggressor (Jay R. Feierman); and fasting and feasting rituals, construed as status enhancers, adaptive analogues of the peacock’s tail signalling the tail-owner’s genetic fitness (Rick Goldberg).

We are introduced to the concept of ‘t-patterns’ as a way of exploring how Christian and Islamic Scriptures “mediate interindividual and intergenerational transfer of ever-more complex behaviors within communities of increasing sizes” (Magnus S. Magnusson); to ‘mirror neurons’ and simulation theory in which it is posited that we attribute mental states to others by simulating or reproducing in our own mind the same state as theirs (Burgess C. Wilson); and to the ‘brainsoothing’ effect on Christian and Islamic believers, whereby stress is reduced through the “religious beliefs, socialization and rituals” that being a follower of these religions entails (Michael T. McGuire & Lionel Tiger).

In discussing the possibility that we are born with an innate capacity to ‘learn’ religion, Candace S. Alcorta suggests that we may have an optimal developmental period during adolescence for that learning to occur; and Lluís Oviedo offers a coevolutionary model, arguing that “at least some cognitive religious beliefs, emotional religious feelings, and the religious behaviors they motivate exist because they are ‘internally guided’. As such, they are not wholly dependent on Darwinian evolution by natural selection for their existence”.

Possible relationships are examined between religion and cooperation (Maria Emilia Yamamoto et al.), religion and altruism (Klaus Jaffe & Luis Zaballa), religion and childhood corporal punishment (Benjamin J Abelow), and religion and psychosis (John Price) – this last not being an attempt to conflate the two, but to illuminate the phenomenon of ‘belief systems’ and their adaptive importance.

The range is impressive, with many useful and insightful points being well-argued, and Feireman has structured the book well, both in the order of the contents, and in his topping and tailing the collection.

The various contributions depend to a greater or lesser extent – and mainly implicitly, but in one or two instances explicitly – on the paper co-authored by Lyle B. Steadman, Craig T. Palmer and Ryan M. Ellsworth, and I will now comment on this at greater length. They take on the tricky problem of trying to offer a “testable definition of religious behavior”. After an excellent, concise literature review of the many authors in the field who have defined religion in terms of the supernatural, they too agree that “[r]eference to something supernatural is crucial to any *functional* definition of religious behavior”. But since the supernatural falls outside the reach of science, and “the only thing that can be objectively observed and identified by an observer about supernaturals is what people *say* about them...,” they settle on the definition of ‘religious behaviour’ as “*the communicated acceptance of a supernatural claim.*”

This definition has its strengths. It provides a useful degree of coherence among the several contributions to the book, and by saying they are developing a *testable* definition the authors bring it within the remit of scientific investigation. This is to the good.

What I am less happy about, though, is the assertion that reference to the supernatural is “crucial” – defining religion in terms of the supernatural is not universally accepted by

commentators (D.S. Wilson in *Darwin's Cathedral* considers such an understanding to be "shallow"), and even some religious believers/practitioners would deny that the alleged supernatural is *crucial* to their religious understanding. True, Steadman et al are seeking a *functional* definition, and there is good justification for this focus on the supernatural with many authors from the sciences cited in support, but there is no explicit description or definition from theologians or, indeed, from lay-believers (*qua* theologian or lay-believer). So we lack any discussion of how what the scientists are describing accords with, or doesn't accord with, what religious practitioners themselves consider they are doing or believing. Any full description and understanding of behaviour needs to take into account what anthropologists call the 'emic' dimension (an understanding of the behaviour that is meaningful to the person within the culture – or in this case, from within the religious tradition) and not just the 'etic' dimension (an account by an outside observer). The difference is somewhat reminiscent of a kiss being described in rather different terms by a behavioural psychologist and by a lover (or by a behavioural psychologist *as* a lover).

The question of definitions is a vexed one, and any suggested definition could be taken apart (for which reason I am not offering one!). Despite my comments Steadman et al argue their case well, and their definition does provide a good focus for the book's varied contributions. And since the book's title refers to religious *behaviour*, not to religious belief or religious experience, Feierman and his contributors have done what they set out to do. These contributions to the understanding of religion and its evolutionary roots are very welcome.

PUBLICATIONS BY MEMBERS OF THE FORUM

Mary Midgley, *The Solitary Self: Darwin and the Selfish Gene*. Durham: Acumen, 2010.

John Polkinghorne (ed.), *The Trinity and the Entangled World*. Grand Rapids: Eerdmans, 2010.

Andrew Robinson, *God and the World of Signs: Trinity, Evolution, and the Metaphysical Semiotics of C.S. Peirce*. Leiden: Brill, 2010.

LeRon Shults, Nancey Murphy and Robert J. Russell (eds.), *Philosophy, Science and Divine Action* Leiden: Brill, 2009. Features some of the best essays from the Vatican/CTNS series on divine action.

Russell Stannard, *The End of Discovery*. Oxford: OUP, 2010.

BOOKS RECEIVED FOR REVIEW

Brian Brock, *Christian Ethics in a Technological Age*. Grand Rapids: Eerdmans, 2010.

Philip Clayton, *In Quest of Freedom*. Gottingen: Vandenhoeck and Ruprecht, 2009.

Michael Graziano, *God, Soul, Mind, Brain*. Teaticket, Ma.: Leapfrog, 2010.

Nancy Morvillo, *Science and Religion: Understanding the Issues*. Chichester: Wiley-Blackwell, 2010.

The Editor welcomes offers to review these publications. Please contact him on c.c.b.southgate@ex.ac.uk.

Note: Policy of *Reviews*: This Journal aims to publish original and reprinted reviews of books published in the science-and-religion area. The Editor regrets that he is not able to publish, or enter into dialogue on, original articles not tied to a book in the field.