

Reviews

J. B. Stump and Alan G. Padgett
(eds.)

The Blackwell Companion to Science and Christianity

Wiley-Blackwell 2012. 644 pp. hb. £120.00.
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This edited volume consists of fifty-four chapters, each written by a different author and assembled into eleven sections, and covers the breadth of dialogue between the Christian faith and science. The various sections cover: history, methodology, cosmology, evolution, natural theology, human sciences, bioethics, metaphysics, the mind and theology. The editors state that they have chosen to consider the subject from a philosophical and historical perspective.

The authors come from a wide range of theological and scientific perspectives, and the editors make no attempt to endorse or comment on one or another position. Chapters offering contradictory views are therefore juxtaposed without comment (e.g. intelligent design alongside theistic evolution). Surprisingly, for a volume with this title, one finds that some of the authors are neither Christians (some are atheists) nor scientists. Indeed to the question ‘Does the Universe need God?’ Sean Carroll answers ‘no’. The uninformed reader could therefore be left confused by such a pot-pourri of ideas, though of course the specialist academic might find this a useful resource. Each chapter is only ten to twelve pages long and includes references and further reading. The short length of each chapter does not leave any space for elaborate introductions and each time the reader is thrown in at the deep end. Some chapters stretched my mind, while to be honest, as a biochemist, I found others incomprehensible, though doubtless other specialists will prefer a different

selection. A few chapters were frustrating from a Christian perspective and appeared to deny some fundamental tenets of orthodox belief. Rather a large number of chapters were written by philosophers, using their specialist jargon.

While some chapters are rather abstract or only remotely connected to the subject (sociology, economics, and feminist views for example), there are some notable omissions, with relatively minor discussion of topics such as anthropology, consciousness and neuroscience, and only one chapter considering ecology and the environment.

The final section considers the views of six contemporary writers on science and religion (de Chardin, Torrance, Peacocke, Barbour, Pannenberg and Polkinghorne). ‘Contemporary’ is an odd word here as the first three are deceased! Nonetheless these have all had an impact on science and religion over the past eighty years and this section provides a brief summary of the different ways that they have engaged with the debates, though the authors of these chapters are not entirely sympathetic to the views of the people they are describing.

This is not a reference book for the faint hearted and it is clearly intended for the upper end of the academic audience. There are some excellent nuggets hidden here, some of which are written by regular *Science and Christian Belief* contributors, but they are buried among a morass of others. This is a book to recommend for the reference section of the college library, but hardly one for your personal collection or bedtime reading!

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John Polkinghorne
Science and Religion in Quest of Truth

London: SPCK, 2011. 143 pp. pb. £9.99.
ISBN 978-0-281-06412-0

In this recent volume, John Polkinghorne sets out to present a brief synoptic account of the contemporary dialogue between science and religion based largely on his more than three decades of reflection on the issues.

The book consists of five short chapters beginning with 'Truth and Understanding', which seeks to lay to rest various common misunderstandings about the nature of science and theology. In his view, the scientist does not deal in uninterpreted facts and cannot avoid making metaphysical decisions. However, in contrast to the scientism of certain new atheists, genuine science is characterised by a modesty that recognises its limitation to the impersonal dimensions of the world. Theology, like science, is concerned with truth but because of its focus on transpersonal encounter with God it lacks the linearly progressive character of science. Further, theology works from experience to understanding rather than taking refuge in any certain knowledge of the divine. A central thesis of the volume is that 'both science and theology can lay claim to the achievement of a degree of truthful understanding that warrants their insights being described under the rubric critical realism' (15). The chapter concludes with a brief examination of how science and theology might be related based on Ian Barbour's four-fold taxonomy of the subject (conflict, independence, dialogue or integration). Polkinghorne's preferred option is the way of dialogue: the unity of the world is strongly suggestive of the ultimate unity of all knowledge so the goal of such dialogue is look for points of congruence between science and theology as they ask their different questions of the world.

Chapter 2, 'Some Lessons from His-

tory', briefly examines the Church's reaction to Galileo and Darwin, arguing that these are not true examples of conflict between science and theology. Far from conflicting, he insists that the Judaeo-Christian world-view was influential in the emergence of science.

In Chapter 3, Polkinghorne explores a range of 'Insights from Science', arguing that 'If science and theology are colleagues in the common quest for truth, then they will have cousinly gifts to offer to each other. What science can give to theology is to tell it what the history of the universe has been like, including the history of life on Earth, and what is the nature of the physical world' (33). Specifically, he summarises what contemporary science has to tell theology about causality, relationality and holism, cosmology, evolution, time and consciousness.

Chapter 4, 'Theology and Science in Interactive Context', launches into an exploration of ways in which science and theology can be seen as complementary. His starting point is the venerable project of natural theology: what, if anything, do the unreasonable rationality and remarkable fine tuning of the universe tell us about God? He then moves on to brief discussions of the problem of evil, providence, prayer, miracles, God and time, the end of the world, and the idea of revelation. The final chapter explores the key Christian doctrines of Christology and the Trinity with a view to indicating how 'Christian belief can be seen to find its basis in experience carefully evaluated' (116).

A brief postscript deals with the plurality of religious faiths. He takes for granted the necessity of dialogue between different faith communities and proposes the relationship between science and faith as a challenging but not too confrontational place to begin that dialogue.

As always, Polkinghorne is clear and straightforward. The result is a useful

brief introduction to his take on the core concepts and critical issues in the contemporary dialogue between science and religion. Helpfully, it also functions as a kind of synoptic key to his thinking as a whole, thanks to an extensive set of footnote references to more extensive discussion of issues in his other writings.

Lawrence Osborn is a theologian and editor with a background in astronomy who has written extensively on the interaction between Christianity and contemporary culture.

Fraser Watts (ed.)
Spiritual Healing: Scientific and Religious Perspectives

Cambridge: Cambridge University Press, 2011. 207 pp. hb. £55.00. ISBN 978-0-521-19793-9

Many of us, including those of us with careers in medical science, are well aware that there is more to healing than our science alone can offer. We rightly welcome, and are thankful for, the enormous advances that medical science has achieved in the understanding and management of human diseases and ailments. But those who are ill can receive much help from other forms of professional assistance, provided – for example – by hospices, social services and various charities, and may also benefit greatly from the support and encouragement of families, friends and religious communities and groups. They may need people to visit them, to undertake practical tasks for them and to listen sympathetically to their worries. They may want people to pray for them and with them.

Such matters bring us to a particularly notable feature of this multi-author book – which had its origins in a multidisciplinary symposium involving medical and social scientists, philosophers and theologians – and that is its

comprehensiveness. It sees ‘spiritual’ as incorporating both science and religion, and spiritual healing as any healing in which spiritual practices play a role, rejecting, for example, the point of view of the Medical Bureau at Lourdes that regards healing as ‘spiritual’ only if it is inexplicable in natural terms. Aspects of spiritual healing that it explores include the theological and the historical within a variety of faith traditions, but also various socio-scientific, biological, psychological and non-religious processes by means of which healing may be mediated or enhanced. There is an important emphasis on interpersonal and compassionate relationships, and ways in which these can, and actually do, influence biology. The point here is that healing can be spiritual in a rich variety of ways, and a pastorally fruitful ministry needs to recognise this and to view the spiritual as one facet of an integrated human nature. As Fraser Watts himself writes: ‘The spiritual aspects of human nature can be distinguished from the physical and psychological, but are not separate from them.’(167)

I found their discussion of the influences that psychological and psycho-analytical matters can have on biology, including immunology, helpfully informative. Terms such as ‘psychosomatic’ and ‘placebo effect’ can sometimes be used in almost derogatory ways. It is good to read a thoroughly constructive account of their true nature and physical and spiritual importance.

The authors leave open, but do not discount, the possibility of the miraculous in healing ministry today. They are probably wise to do so, not only because this is a controversial issue but also, and more importantly, because there must surely be aspects of our humanity that science is not yet equipped to explain or grapple with. There are places where they seem less than adequately critical of some aspects of New Age practices and complementary and alternative medicine but, in a book such

as this, it is better to err on the side of inclusiveness than exclusiveness. For a rigorously critical, but fair and comprehensive discussion of alternative and complementary medicine, I would recommend *Trick or Treatment*, by Simon Singh and Edzard Ernst, Bantam Press, 2008, a book that is not included in what is generally a wide-ranging and most valuable bibliography.

This book will, I am sure, prove of great value to all who are involved or interested in healing ministry in its widest sense, not least because ‘all human efforts at healing take place within God’s created order and are in accordance with His purposes’ (6). It will, I hope, encourage informed and fruitful healing ministries, and stimulate further discussion in what has, in some Christian scientific circles, been a neglected topic.

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Conor Cunningham

Darwin’s Pious Idea: Why the Ultra-Darwinists and Creationists Both Get It Wrong

Grand Rapids, MI: Eerdmans, 2010. 580 pp. hb. £23.99. ISBN 978-0-8028-4838-3

Darwin’s Pious Idea is intended as a counterpoint to an extreme and simplistic view of evolution and its effect on the meaning of life as presented for example by Daniel Dennett in his book *Darwin’s Dangerous Idea*. To describe this book by deconstructing the title, I’d say it is an extended statement *that* (not so much *why*) a group of (largely mythical) power-hungry sorcerers called the ‘ultra-Darwinists’ (not so much the Creationists) *get it* (meaning evolution and how it ought to fit into our world-view) wrong. Most of the book follows the title’s lead in putting the cart of reference before the horse of

thesis. Just as the title leans against some other book and thereby makes its point a little more obscure and hyperbolic, the text within does exactly the same thing. As an annotated compendium of quotations, this book is excellent – it makes me want to read more. Not more Cunningham, just more in general. More Weil, Chesterton, Lewis, Polanyi... wonderful stuff. Of course, many of the author’s own statements fit in that esteemed collection too, such as this one: ‘Thinking atheism and thinking religion alike must conduct their various discussions in a manner that leaves the vulgar rants of all modes of fundamentalist thinking behind’ (267). The twin dunderheadednesses of fundamentalist atheism and fundamentalist creationism form the central negative theme in this book. The book’s strategy, however, is not primarily to argue carefully against these views, but rather to assemble a conglomerate of provocative statements that together suggest or hint at an alternative. It is in sketching this alternative that the book’s chief virtue lies, but that comes way at the end and so we must hazard the rest first.

This book faces two main problems in reaching its stated objective: creating the ultra-Darwinist straw man and handling biology abysmally. Chapter 1 is occupied with the mistaken position that something bad called ultra-Darwinism is the received view in evolutionary biology. Chapter 2 is mainly an argument against gene-level selectionism based on rudimentary molecular biology. Aside from the fallacy of the argumentation, the core message of the chapter misunderstands the nature of selection, which can be considered gene-level as easily as individual-level depending on how one describes it – it is exactly the same process. Moreover, the chapter confuses the ‘one gene-one trait’ view with genes as selfish entities, misstates the importance of genome size, makes a mess of pleiotropy, etc., etc. Chapter 3 is composed of

exhausting and exhausted arguments against extreme adaptationism, and concludes that issues such as protein folding render selection incomplete as an explanation for life – something nobody out of Introductory Biology could contradict, which is why nobody does in fact contradict it. Chapter 4 is a vague and rhetorical defence of progressivism in evolution, nearly completely disconnected from the last century of discussion on this topic among people who understand evolution. It argues for one sense in which any history at all would necessarily be progressive, and another sense that places humans at the pinnacle of evolution. Speaking of pinnacles, Chapter 5 on the evolution of human psychology is the apex of this book's mischaracterisation of evolutionary biology – not surprisingly, as impulsive thinking about evolutionary explanations of humans is rampant in popular science, which is where the author gets his information. Although some of the arguments are good here, the target the chapter sets up is too broad and the chapter displays too little knowledge about the supposedly villainous fields.

In chapter 6, slowly, like evolution, a change begins to come over the book. This, the largest chapter, though it begins as a critique of materialism and views that resemble it, begins to offer a positive case for something: in particular, for *idealism* – not just that physical things have a spiritual side, but the full-blown notion that 'mind goes all the way down', that spirit is more fundamental in the universe than matter. Just as George Berkeley's (similarly Christianity-inspired) repulsion by the matter-obsession of his day led him to leap to the opposite pole and declare matter nonexistent, Cunningham reinterprets this spirit and says intriguingly that 'we have lost matter' (326); matter is not the hard and fast thing we thought it was, but is itself mysterious. I think there is something of value here, but that the polarity of the response is an overreaction.

The last chapter, the shortest since the initial caricature of the enemy, is where Cunningham really comes into his own. Now we see what drives him, and what he *really* wants to say. Here is a proposal for a nuanced Christian view of existence, an elaboration of a doctrine (or at least a vision) of Creation-Fall-Redemption. The average reader, even a reader of this obviously pro-theist book, might experience some difficulty in following some of his instant adages (e.g. 'making grace religious makes it atheistic', 383). Such statements are neither meaningless nor intentionally obscure – they arise out of his general goal of increasing the dimensionality or richness of our thought, away from the fundamentalism of either atheism or creationism. Whether or not one agrees with the specifics of the programme, its elaboration avoids the reactionary, polarising, simplistic and outdated approach that characterises the polemic part of the book. The author is sloppy with what he doesn't like, but good at what he likes. Anyone should read this chapter closely who wishes to adhere to – or construct – a Christian philosophy that incorporates evolution.

Returning to the title, and in general the contention that 'the theory of evolution is a "pious idea"' (xvi), this is a bold reaction to the view that it is inherently dangerous and atheistic. I think that it is in fact neither. We can decide whether or not to be pious, but evolution is what it is regardless. It happens, and happened before there was any piety or atheism among its products. It will be pious to the pious and impious to the impious. Such values emerge from how one views it. The author is the one with the pious idea, and he also likes evolution – at least from a distance. So he tells us (a bit, at the end of the book) how we can consider it through the eyes of faith.

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Craig S. Keener

Miracles: The Credibility of the New Testament Accounts. Volumes 1 and 2

Grand Rapids: Baker Academic, 2011.
1771 pp. pb. \$59.99. ISBN 978-0-8010-3952-2

This two volume set by Craig Keener addresses the subject of miracles. Keener is professor of New Testament at the Asbury Theological Seminary in Wilmore, Kentucky, U.S.A. He is a professing Christian associated with the Pentecostal and Charismatic movement and an ordained minister within that tradition. Keener approaches the subject of miracles from the viewpoint of the New Testament accounts contained mainly in the gospels and Acts, and to some degree, the Pauline letters. Keener's work is not limited however to miracle accounts in the New Testament alone. Keener canvasses a vast amount of various miracle reports up to the present time. This two volume set is by no means light reading. It is a tour de force. It is densely documented throughout with numerous footnotes and references which indicate a serious treatment and research of the subject.

The major thrust and challenge of Keener in this work is to call attention to the virtual absence that exists in academia of assessment of miracles as real events, both in historiography and in present human experience. Keener appeals to the massive reports of miracle claims worldwide, many of which have been confirmed by eyewitnesses. The anti-miracle approach of many in academia according to Keener is due primarily to the influence and writings of the eighteenth century Scottish philosopher David Hume (1711-1776). Hume's view has become the standard philosophical grid in the historical critical method of most academics within the field of New Testament scholarship.

Hume's contention was that miracles were contrary to human experience and

that they were violations of natural law which was contained within a closed system. Keener has issued a challenge as a result of the findings in his book, that this inherited Humean view in academia must be reconsidered and seriously questioned as having any validity. Keener argues that Hume's view is seriously flawed and must be summarily rejected based on a massive repository of evidence that demonstrates Hume's arguments to be false. Keener notes that, 'antisupernaturalism has reigned as an inflexible Western academic premise long enough and that significant evidence now exists to challenge it' (2). What Keener is ultimately addressing in his work is a clash of philosophical world-views in academia. The world-view of naturalism that there are no miracles, no such things as resurrection from the dead, virginal conception, the instantaneous healing of blindness, paralysis, and so forth, is just as much a philosophical world-view as supernaturalism, that miracles do occur as a causative action by a divine being such as God. One's starting premises, whether atheism, deism, or theism, will shape one's conclusions, as Keener later argues (124). The dichotomies of 'natural' and 'supernatural', Keener shows, are modern Western conventions (7 n11). Academics are coming to the same text such as the New Testament. What determines their differing positions on the issue of miracles seems to come down ultimately to their respective world-views. A theistic bias according to Keener is no more of a bias than an atheistic one (14).

The opposition to the possible reality of miracles has also motivated many scholars to dismiss the healing and miracle accounts contained in the gospels as legendary materials. From the outset Keener suggests that scholars be willing to accept supernatural theism as an 'academically acceptable explanatory option' (8). Keener openly admits that he was an atheist at one time, prior to his conversion to Christianity, and

that he too held to a purely naturalistic world-view of reality.

Keener divides his work into two volumes. In the first volume he breaks down the book into three parts (1-3) composed of 12 chapters. The second volume is in one part (4), chapters 13-15, followed by a conclusion and 5 appendices (A-E). Keener investigates whether the world-view of supernaturalism can be used as a criterion of authenticity. He examines the influence of Hume on academia and questions whether Hume's position against miracles can still be sustained as an argument. The response of modern scholars, according to Keener, has been the tendency to treat the miracles in the gospels and Acts as fictitious elements. Keener sees this approach of treating the texts as if they are 'guilty until proven innocent' as, in effect, committing the 'poisoning the well' fallacy (97). The historical method can tell us about the beliefs of the ancients with regard to miracles, but it cannot adjudicate whether the miracles were genuine or not. This involves a philosophical question. The philosophical position of true relativism held by many in academia, must allow for the possibility of the supernatural. The common approach by many is to take an a priori position and rule out miracles altogether based on the assumption that they cannot happen. This again is a purely philosophical presupposition no different from supernaturalism.

Keener also investigates Hume's position and his approach to miracles as reflecting his own presupposition of atheism or deism; in short, Hume's position is by no means neutral. Keener makes an important point that Hume 'defines away miracles' (108). Hume argues rather from the uniformity of human experience, that miracles do not happen. Keener charges Hume with presenting a circular argument in this case. A miracle according to Hume is a 'violation of natural law' yet he defines 'natural law' as principles that cannot

be violated (134)! Hume's definition of miracles claims what he seeks to prove. Hume denies miracles, but he never refutes the existence of miracles. Denying something is not the same as refuting it. An inconsistency on Hume's part is that while his argumentation against miracles was based on induction, Hume also argued that induction could not be justified rationally as a sure epistemological approach of any presumed certain events. According to Hume, while the sun rises every morning based on habitual perception, one cannot be absolutely certain it will rise the next day.

Miracles in Keener's view are samples, temporary signs, or snapshots of what the kingdom of God will be like when it comes in its fullness. Keener's work deserves a careful, serious and fair reading. If miracles have happened, and do continue to happen, they would appear to present an argument for God's existence. Ultimately, for Keener, the argument for or against the reality of miracles comes back not to the question of science, but to one's world-view. This is at bottom a philosophical question, not a scientific one. Everyone, including the scientist, has a philosophical presupposition through which his or her world-view is formed.

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Martin Nowak with Roger Highfield
Supercooperators – Evolution, Altruism and Human Behaviour (or Why we need others to succeed)

Edinburgh: Canongate Books Ltd, 2011.
330 pp. pb. £20. ISBN: 978-1-84767-336-7

The central theme of this book was brought home to me whilst watching my four-year-old son playing at the ‘soft play centre’ adjacent to the British Library at Boston Spa. One section of the play area was full of foam balls that could be inserted into two tubes that, through suction provided by a compressor, delivered the balls into a Perspex box above the children’s heads. Every few minutes the compressor turned off, releasing the pressure that held the doors of the box closed, sending the balls cascading onto the excited children waiting below. However, this game only worked so long as enough children cooperated in collecting the balls and inserting them into the tubes so that the box could be filled. Generally the children seemed willing to cooperate in this task, however every now and then a defector would emerge who, instead of helping to collect the balls, would just lie on the ground under the box waiting for the balls to descend.

This book is a fascinating description of game theory based on the work of Martin Nowak, Professor of Biology and Mathematics at Harvard University. The preface and introductory chapter are quite important as they outline the problem this book seeks to explain: namely the observation that, despite popular conceptions of nature being ‘red in tooth and claw’ (Tennyson), humans have a remarkable ability to cooperate: ‘...take four hundred chimpanzees and put them in economy class on a seven-hour flight... they would, in all likelihood stumble off the plane... with bitten ears, missing fur and bleeding limbs... yet millions of us tolerate being crammed together in this way’ (xiv). As a mathematical biologist, Nowak de-

scribes this problem in the form of the ‘Prisoner’s Dilemma’ that seems to explain mathematically why cooperation shouldn’t work: ‘where any two individuals meet equally often, cooperators always have a lower fitness... natural selection will slowly increase the number of defectors until all the cooperators have been exterminated’ (10). And yet, from the molecular functioning of our cells through to the ‘towering termite mound... stadium rock concert to the surge of commuters in and out of a city during a working day’ (11), it seems that ‘in addition to the fundamental forces of mutation and selection, there is a third evolutionary force, that of cooperation’ (3).

Far from being one of those popular science books where a mathematician seeks in vain to explain complex equations to a lay audience, this book is clear and eloquent, most likely due to the involvement of Roger Highfield, the editor of *New Scientist* magazine. Following the introduction the first section describes five ways of solving the Prisoner’s Dilemma that, although quite mathematical, are explained so exquisitely that very few readers would be confused. This part includes a particularly clear description of his ‘multilevel selection theory’ (Eusociality described in *Nature* (2010) 466, 1057-1062) as his proposed alternative to kin selection. The next section of the book moves beyond the theoretical to discussing how these solutions to the Prisoner’s Dilemma could lead to cooperation at the start of life (Chapter 6 – Pre-life), at a cellular level (Chapter 7 – Society of Cells) and in insects where he again revisits his critique of kin selection (Chapter 8 – The Lord of the Ants). As a biochemist I found the chapter on pre-life exceptionally interesting and clear. The final part is entitled ‘From Cooperators to SuperCooperators’ and is probably of most interest to a general audience. Here he uses the principle of cooperation to describe the importance (and evolution) of language, the role of

cooperation in societies and especially the sort of strategies that counteract the ‘tragedy of the commons’ (he uses climate change as an example), and why cooperative strategies based upon incentives generally work better than strategies using punishment. As might be expected, this section treads a thin line between empirical science and political philosophy. The final three chapters are entitled ‘How many friends are too many?’, ‘Game, Set, and Match’ (a play on how he has used ‘set theory’ to describe cooperation) and ‘Crescendo of Cooperation’ where the writing becomes rather grandiose. Indeed my main criticism of this book is that it never fails to mention Nowak’s publications in *Nature* or *Science*, the great institutions he has worked in, or how brilliant his colleagues are. Unfortunately this grandstanding style does detract somewhat from the fascinating science.

At my house I have three piles of books: those I have read, those I want to read, and those I would like to read if I had a second lifetime. Generally the factor that determines whether a book lands in pile two or three is whether it contains information I think is relevant to my thinking at any given time. I would say this book is very relevant to anyone who seeks to understand how science and mathematics can help understand society and behaviour, even the behaviour of children at a soft play centre. Indeed in line with Nowak’s theory it seemed that the defecting children who were not cooperating by placing balls in the tubes did benefit in the initial round of the game. However, as the game continued and all the children became more and more excited, the defectors ended up getting trampled in the stampede of cooperators rushing to get under the falling balls. As a result, in the next round, the defectors had either been removed from the ball pool (due to injuries) or had decided to cooperate.

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James A. Van Slyke

The Cognitive Science of Religion

Farnham/Burlington: Ashgate Publishing, 2011. 178 pp. hb. £50. ISBN 9781409421238.

The ‘cognitive science of religion’ (abbreviated as ‘CSR’) is an explanatory and interdisciplinary framework that has emerged since the early 1990s and that attempts to describe and explain the cognitive foundations of religious ideas and behaviours. In this book – a revised version of his PhD-dissertation – James Van Slyke looks at the methodology underlying the CSR to ask whether it is sufficient to explain religious belief. He claims it isn’t.

The first chapter describes what Van Slyke calls the ‘standard model’ of the CSR that stems from insights from evolutionary epistemology and cultural epidemiology, and that claims to explain religious belief by referring to anthropomorphising, the working of the ‘hyperactive agency detection device’ (HADD) and the notion of ‘minimal counterintuitiveness’. The standard model of CSR claims that religious cognition is a by-product of the evolution of human cognition, that religion ‘is parasitic on the functions and structures of the evolved tendencies of human cognition. Human cognition was originally designed for a different set of adaptive problems, but has been recruited for its usefulness in spreading and disseminating religion’ (10).

According to Van Slyke, the standard model of the CSR is unable to explain religious belief because of its reductionism. According to Van Slyke, ‘many components of religion are not a by-product of cognitive adaptive modules; they are an *emergent* property of the human representational systems’

(30). Thus Van Slyke uses ideas from emergent cognition to argue for a non-reductive view of religious cognition. Emergence, in Van Slyke's view, leads to a dynamic view of cognition based on the concepts of initial conditions, feedback and pattern formation (42ff.).

Van Slyke eventually softens his critique of the standard model of the CSR by claiming that the CSR focuses mainly on the initial conditions and does not take into account emergent and top-down factors, some of which are cognitive in nature but, if one adopts an embedded cognition approach, also include social and cultural factors. In the end, the CSR turns out to be not so much wrong as it is one-sided, able to explain why some aspects of religious beliefs are by-products 'while other properties are constituted according to feedback processes that occur in the social contexts in which religious beliefs develop' (153).

I take issue with Van Slyke's reduction of the broad field of CSR to the 'standard model' and with his misinterpreting the theological (in)correctness thesis which underlies the argument of chapter 3. There are also stylistic issues. The book makes for turgid reading, there are lots of loosely connected but technical discussions on neuroscientific, cognitive and psychological issues. The book is also marred by typos and editorial errors (e.g. Van Slyke often confuses the verb 'constrains' with 'constraints' and consistently writes 'Pierce' when referring to the philosopher 'Peirce').

My main criticism of the book, however, is that it is unfinished and raises expectations that remain unfulfilled. The book's premise is a bold claim, namely that the CSR is unable to account for religious belief, that it needs the addition of 'emergent factors' to explain religious belief fully. As the field of CSR stands, no serious CSR scholar would claim otherwise. But Van Slyke in the beginning of the book also makes the additional

claim that 'the empirical evidence from the by-product theory (and cognitive and evolutionary science in general) is insufficient to simply eliminate a theological explanation for religious belief. A theological perspective can offer a competing metaphysical framework for interpreting this research' (30). However, while the rest of the book argues that a 'multi-level perspective on the emergence of religious belief' should complement CSR findings and thus remains within the boundaries of the cognitive science, when the book ends rather suddenly on page 154, the reader is left wondering whatever happened to the theological explanations.

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Harry Lee Poe & Jimmy H. Davis
God and the Cosmos: Divine Activity in Space, Time and History

Downers Grove, Illinois: InterVarsity Press, 2012. 303 pp. pb. £15.76. ISBN 978-0-8308-3954-4

I completed two readings of this book with a deep sense of frustration, though I should record that I gained more from the second reading than from the first. The topic is important. How does God act, in the physical universe, in the development of life, in human history? God is the creator and sustainer of the universe, both the source of its reliable, rational and remarkable behaviour, so that science is possible, and also the one who occasionally intervenes in miraculous ways. It is of great interest to understand more clearly how He acts. The authors (one a theologian and one a chemist, and both Christians) have read widely, currently and relevantly. They are not trying to demonstrate the existence and activity of God within a scientific context, but aiming to help Christians in their thinking. They clearly want to take both science and Scripture seriously; they are neither young earth

creationists nor (I judge) adherents of 'intelligent design'. They are trying very hard to justify the idea that you can both accept a full scientific account of a phenomenon and also believe that God is involved in the phenomenon, not merely some kind of deist originator of it. 'Given our common faith in God, we have sought to understand how God acts in a world in which laws of nature operate consistently.' They go to great lengths to distance themselves from the 'God of the gaps'. Perhaps their key statement (29) is that 'The universe has an open door at every level of complexity for the personal (whether human or divine) to interact, intervene, interrupt and alter the course of nature while never violating the laws of nature. Science and the ability for personal minds to develop science provide us with the empirical evidence that a personal mind may interfere with the laws of nature without altering them. Rather than hiding in the gaps, God is involved in the big observables that science describes.' The prospect of exploring these issues is exciting.

But the overall result is disappointing. There is too much repetition, too many loose, confusing, or wrong statements; I do not question their good intentions, but I do question their judgment! The writing style is often difficult to follow. The huge range of subjects covered makes it difficult for this reviewer to comment competently; but is it really relevant to give a detailed analysis, for example, of the different varieties of Hinduism and Buddhism? I was astonished at the apparent approval of Edgar Allan Poe's *Eureka*; have they actually read all of it? I would have expected some discussion of the differences between when God acts 'providentially' – with no apparent suspension of normal physical laws – and when He acts miraculously. Nor did I find any real enlightenment about how prayer and divine revelation may work.

There are books and ideas referred to here that I should like to pursue;

but I finished my reading not feeling any clearer about these fascinating and important issues, annoyed with the repeated discovery of statements which seemed at the very least doubtful, and unable to recommend it either to experts in this field, or to those with little prior knowledge. I am painfully aware that it is easier to criticise than to create, but I have to record my disappointing verdict.

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Fraser Watts and Christopher C. Knight (editors)

God and the Scientist: Exploring the Work of John Polkinghorne

Farnham, Surrey, England and Burlington, VT, USA: Ashgate Publishing, 2012. 284 pp. pb. £17.99. ISBN 978-1-4094-4570-8

This volume is the outcome of the international conference which was held at Oxford University in 2010 to celebrate the 80th birthday of Sir John Polkinghorne, whose scientific accomplishments would have been enough for any one person, but whose second career in theology has marked him as perhaps the leading voice in the science and religion world today. As one who attended the 2010 conference it is a joy to revisit the major papers and lectures of that event. But anyone, familiar or not with Polkinghorne's writings, will benefit greatly from this publication. The book begins with an essay by Polkinghorne, 'Reflections of a Bottom-Up Thinker', whose title is a reprise of the subtitle of his Gifford Lectures some fifteen years earlier. This introduction, combined with his final chapter of responses, sets the stage for an enlightening exchange between the various chapter authors and the subject of this book. Reading

the response along with the individual chapters brings the reader into the middle of this conversation on the various themes in Polkinghorne's major body of work (over 25 books and nearly 100 articles and book chapters as listed in the very helpful 'Selected Bibliography' included at the end of the volume).

As with any collection of essays it is a mixed bag and it will not be possible to discuss all fourteen of the commentators on Polkinghorne's work, but the reader will find plenty to engage with as the authors interact with the subject and his writings. Some chapters are of particular note, including Ian Barbour's discussion of the three theologians who were compared in an early book by Polkinghorne himself: Barbour, Arthur Peacocke and Polkinghorne. A number of the authors deal directly with major themes in Polkinghorne's writings such as Pat Bennett's exploration into his commitment to critical realism, while Russell Manning looks at his approach to natural theology in light of the tradition of liberal theology. Nicholas Saunders looks at chaos theory in terms of epistemological openness and Terry Wright discusses Polkinghorne's use of informational causality as a way to understand divine action in the world. Keith Ward examines Polkinghorne's concept of the soul while Junghyung Kim considers his 'bottom-up' approach to eschatology and the grounds for Christian hope.

An important theme that emerges from a number of the authors and from Polkinghorne himself is that of divine kenosis. James Watkins explores the theme in comparing divine and human creativity and Philip Clayton discusses the impact of the kenotic approach to major themes of God's power, knowledge, causal status and relationship to time. In his response Polkinghorne acknowledges divine kenosis as not only a key theological concept for him but also as 'one of the most important developments in twentieth-century theology...a significant departure from classical the-

ology, but...within the Trinitarian envelope of understanding that I wish to affirm.' (269) In this divine self-limitation divine transcendence is affirmed but in the context of love which gives freedom to both the creation and to humanity.

Reading these chapters gives one a very rounded understanding of the major themes in Polkinghorne's writings both as summary of his ideas but by also expanding the perspectives through analysis and critique. As one engages the 'conversation' it is clear that there are many others entering the discussion. Figures such as Polanyi, Moltmann, and van Huyssteen play significant roles in the discussion by the chapter authors. Others from Barth, Tillich and Lonergan, to W. H. Vanstone, and Teilhard de Chardin, also make appearances as the analysis proceeds. It is indeed a rich discussion with many direct and indirect persons at the table. Whether the reader seeks an introduction to Polkinghorne or a more extended analysis and even critique there is plenty to satisfy.

The footnotes add additional insight to the discussion but the fact that they are not included in the index is one complaint from this reviewer. That along with a few typographical mistakes distracts in only a minor way from the overall benefit in having this exploration of Polkinghorne's work available to those who were at the conference as well as the many who were not able to attend. It does indeed make Polkinghorne's major contributions more understood and appreciated by all who read it. As the editors indicated in the preface (xiv), this is not only an exploration and celebration of Polkinghorne's work, 'but also the outlines of a debate that will go on, as part of his legacy, for many decades to come.'

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Michael Welker (ed.)

The Spirit in Creation and New Creation: Science and Theology in Western and Orthodox Realms

Grand Rapids, Michigan: Wm. B. Eerdmans, 2012. 204 pp. pb. US\$32. ISBN 978-0-8028-6692-9

For all the misty-eyed talk of ‘consilience’ suffusing popular scientific literature these days, exchanges between theology and the natural sciences rarely seem more fruitless than when viewed through the eyes of many of its authors. One of this collection’s most striking virtues is that in conducting intellectually illuminating *ecumenical* dialogue, it demonstrates something of the spirit in which conciliatory conversations might develop between theologians and scientists. The essays build on one of the most encouraging chapters in the recent history of Christian ecumenism, namely the substantive cross-pollination between Western and Eastern Christian theological traditions. They seek in particular to use a dialogue between West and East on the significance and role of the Holy Spirit to open a new front in discussions between faith and science. Perhaps one motivating factor for this encouraging renaissance of mutual interest has been the recent rise of a rash of scientific positivisms united in their hostility towards theological reflection of *any* denominational stripe: this publication is evidence that this sort of antipathy can serve admirably as a recruiting sergeant for enriching ecumenical exchanges.

Politely but persistently, this collection unpicks some of the fashionable orthodoxies that underpin naturalism’s current stranglehold on philosophy of science in the West. The book’s structure lucidly embodies this twofold objective of pressing pneumatological reflection into the service of ecumenism and of a rapprochement between theological commitment in general and scientific enquiry: Part I and Part II feature essays exploring – respectively

– scientific and theological perspectives on the Holy Spirit’s role in creation; Part III subsequently examines the possibility of convergence between the two; and Part IV contains a set of concluding reflections on the Spirit’s role in ‘new’ creation and the possibility of continued dialogue with the natural sciences arising therefrom. The ecumenical and interdisciplinary ambitions of this book are therefore – as Michael Welker admits in his thoughtful editorial introduction – vast in scope. Indeed, given that the task of inching forward just *one* of these two conversations would represent achievement enough, one senses that the ambition of contributing usefully to *both* imposes a methodological strain on the collection that it is not quite able to bear. Still, leaving the inevitable problems of thematic convergence to one side, the standard of the individual contributions is high, sufficiently so indeed for it to be impossible to do justice to each of them in the space of this review. Let me restrict myself, then, to some highlights.

John Polkinghorne offers an especially insightful meditation on how a tentative connection might be established between the apparently spontaneous self-organisation of patterns of ‘active information’ that appear to exert (on the one hand) a causal role in the physical realm and (on the other) the Spirit’s role in actively establishing and preserving intelligibility within the created cosmos. One might imagine a thinker fully committed to materialist doctrines briding at any attempt to uncover an immaterial but causally efficacious seam within the workings of the cosmos. Yet as Polkinghorne elegantly argues here and elsewhere, recent developments in sub-atomic physics have uncovered a world strikingly inhospitable to some of materialism’s most cherished dogmas. And it is not only at the level of description that prevailing positivist orthodoxies come unstuck: building on the Diltheyan conceit that the sciences offer explanatory

descriptions of reality whilst the humanities seek to *understand* it, Jürgen Moltmann argues convincingly against the view that a putatively exhaustive itemisation of physical reality could ever equip us with a comprehensive grasp of reality itself. More irenically, Denis Alexander wisely dodges the conceptual difficulties involved in deriving scientific conclusions from the 'data' of scripture to focus instead on how evolutionary biology might clarify – and not threaten – the biblical account of reality. Most obviously, perhaps, biology delivers a picture of what it is to be human that underscores our materiality and our sociality in a manner that should not only deepen an authentically biblical anthropology, but also banish a number of Platonic ghosts to boot.

By contrast, at least some of the Orthodox contributions – those of Sergey Horujy and Cyril Hovorun in particular – hold fast to the autonomy of theology as a discipline, recognising scant need for any sort of enriching dialogue with the natural sciences. For the Hesychast tradition has been arguing for many centuries before Barth's *Nein!* that the task of coming to know God is far more intimately bound up with the bodily practices of prayer and ascetical mysticism than the *bête noire* of natural theology. Natural theology's overweening confidence in the notion that the book of nature might afford some neutral pathway to knowledge of God is therefore to be rejected for its secret complicity with Enlightenment rationalism. Nevertheless, this approach to nature by no means pervades the Orthodox tradition: as Andrew Louth succinctly demonstrates, Byzantine theology frequently insisted that nature itself carries the hallmarks of divine rationality in the form of *logoi*: such a conviction would, after all, seem to represent no more than a central strand of any doctrine of creation properly so-called. For Maximus, it is the task of the Holy Spirit in creation to disclose these principles to the inquiring mind (though the

connection is not made, these principles are intriguingly suggestive of Polkinghorne's pneumatological notion of 'active information').

It is not unusual with conference collections on such broad themes to induce the intellectual equivalent of *mal de mer*. For some, lurches across such diverse and difficult topics as the mathematics of infinity, psychosocial work with victims of political violence, and the writings of Pseudo-Macarius may do just that. Yet in the opinion of this reviewer, it is this very intellectual diversity that testifies to the sheer depth and breadth of possibilities that pneumatological reflection can open up for Christian theology's ongoing dialogue with the natural sciences. It is for this reason that this collection is especially to be welcomed by participants on both sides of that dialogue.

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Gennaro Auletta
Cognitive Biology: Dealing with Information from Bacteria to Minds

Oxford: Oxford University Press, 2011.
xx + 854 pp. hb. £99.50. ISBN 978-0-19-960848-5

This nearly 900 page slab of a book is about information and how organisms 'deal-with-information'. I hyphenate the latter phrase because the concept of dealing with information is central to the book's thesis. Organisms do not merely acquire information, they also 'control' it.

Part I concerns the origins and acquisition of information. The author's own scientific work has primarily been in the field of quantum mechanics. This, he argues, is where our understanding of information must start: 'quantum-mechanical systems provide both the

information pool and the basic interconnections of our universe' (34). His introduction to the idea of quantum information is peppered with mathematical equations, as are other sections of the book. We then turn to the information-acquiring capacities of the brain, with an outline of the basics of neurophysiology and neuroanatomy leading on to an account of the complexities of visual processing and motor control. In Part II Auletta sets out his thesis that organisms control as well as acquire information. This, he suggests, requires an understanding of complexity theory (more equations), basic biology, evolutionary theory, cybernetics, semiotics, epigenetics, learning, behaviour, memory and more. Finally, Part III is concerned with the interpretation of information, including chapters on intentionality, consciousness, culture, language, and the mind-brain problem.

The first thing to say about this hugely ambitious volume is that the breadth of coverage is astounding, especially given that the author is, as I understand it, working outside his primary area of expertise. At times the result is that the material reads rather more like a text book than a focused argument, and there is arguably some redundancy in the level of detail into which we are drawn. I wondered, for example, whether a full page diagram of the entire structure of life's metabolic pathways (207) added much to the overall argument, especially when it was later reproduced in colour at the same level of almost indecipherable detail. Among the other copious (and largely helpful diagrams) is a drawing of the piercing of Phineas Gage's skull by an iron bar, showing how, en route in through his left eye socket and out through the top of his cranium, it would have taken most of the unfortunate Mr Gage's left frontal lobe with it (455). Too much information, I thought!

My favourite diagram, however, is entitled 'a simplified representation of the relations between mind and body' (667).

Personally, if someone has a convincing account of the relation between mind and brain (or body) then I'd be happy to try to work my way through the non-simplified diagram! And therein lies the key question that must be asked of Auletta's argument. He says that his aim is to overcome the tendency for, on the one hand, biology to be treated in a reductionist way and, on the other, for cognition to be treated in functionalist terms (i.e., as if cognition is something that can happen independently of any specific physical substrate). The result of such thinking, according to Auletta, is a divide between biology and cognitive science, a divide which he believes can be bridged by the concept of information. For this reason, he suggests, 'a new language is required, centered on concepts like information sharing and information selection.' Furthermore, the 'roots of this *language*' (my italics) can be found in the fields of quantum mechanics and quantum information (2). It's clear from the book as a whole that Auletta believes that there is a real, not just a linguistic, continuity between quantum information, biological information and cognitive information. Curiously, however, he doesn't clearly define 'information' at any point (at least not to my satisfaction), and I am therefore not sure that the nature of this continuity has been fully demonstrated. In other words, for all the very interesting and impressive detail in the patchwork of individual chapters, I'm not sure that Auletta has given us a unifying concept of information that convincingly joins the pieces together.

The mind-body diagram mentioned above is symptomatic of this. It shows two parallel planes, one representing the mind and the other the brain. Each plane has several nodes: 'mental items' in the mind-plane and neurons in the brain-plane. A two-way arrow linking one of the neurons to one of the mental items is said to represent how these 'somehow share information'. But even if we set aside the thorny issue of the

unknown 'somehow', what is this thing that is being shared? I am quite happy to accept, as Auletta argues, that the mind can be thought of as an emergent effect of the brain, and that the brain can be influenced by top-down causation from the mind. But labelling the currency in which this exchange takes place as 'information' seems to me to require rather more conceptual clarification than Auletta has provided. Similarly, while I'm very sympathetic to the idea that representation and interpretation are processes with a broadly common structure from microbes to humans, I'm less sure than Auletta that the continuity of this kind of 'information' extends all the way down to the quantum realm.

The value of this book lies in its extraordinary breadth, ranging from the details of ribosomal translation of messenger RNA into the amino acid sequences of proteins (221) to the role of gestures in the evolutionary origins of language (649), and from quantum decoherence (25) to why spotted animals have stripy tails (375 – with equations to prove it). What ties the book together is the recurring suspicion (I'm not convinced that Auletta's account offers the resources to put it more strongly) that something we loosely refer to as 'information' lies behind all these different levels of reality. Yet even if this remains a matter of hints rather than proofs, I take them to be religiously highly significant intimations. Moreover, I agree with Auletta when he says in his 'Final Philosophical Remarks' that 'all natural systems are informationally shielded' (679). I take him to mean that God (whom he acknowledges as Creator, 378) does not inject information into the world from 'outside'. I know that some people take such a view to be entirely antithetical to the idea of a God who reveals God's-self to the world. I prefer to understand it, instead, as a reflection of the absolute otherness of the God whose continual creative activity sustains just the kind of world in which creatures can 'deal-

with-information' in ways that become the basis of their (grace-dependent) self-transcendence.

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Daniel Buxhoeveden and Gayle Woloschak (eds.)
Science and the Eastern Orthodox Church

Farnham and Burlington, VT: Ashgate, 2011. 232 pp. hb. £55.00. ISBN 978-1-4094-0574-0

This book on the topic of Orthodox Christianity and science complements some recent books published in this area, including Efthymios Nicolaidis, *Science and Eastern Orthodoxy: From the Greek Fathers to the Age of Globalization*, Emanuel, S. (trans.), Baltimore: Johns Hopkins University Press (2011), and Michael Welker (ed.) *The Spirit in Creation and New Creation: Science and Theology in Western and Orthodox Realms*, Grand Rapids: Eerdmans (2012) (reviewed above). It contains a collection of articles on the theme written by contemporary American Orthodox thinkers (and one British) working in biology, bioethics, anthropology, ecology, philosophy and theology. Despite the common aim of all papers to address the issue of the relationship between Orthodox tradition and the sciences, the way in which this is done seems to be arbitrary and without any methodology. Certainly it is possible to bring into this discussion some contingent opinions of saints and elders of the Church on the topic of faith and knowledge (article of D. Buxhoeveden, 3). However, these cannot be considered a basis for addressing an academic dimension of the problem. The appeal to the history of Orthodox faith, which is

usually done through reference to the Patristic age, is important as a matter of tradition (papers of V. Karras, 29, and G. Woloschak, 133). However, it must be clear that the Fathers of the Church could not deal with what we nowadays call science, since it did not exist in their age. Moreover, their philosophical language did not correspond to what one has at one's disposal today. The appeal to Patristics implies an explicit theological commitment which must itself be justified and elucidated in the present age. The discussion of the limits of scientific knowledge and religious experience is paramount for articulating the points of tension in the relationship between theology and science (paper of D. Buxhoeveden, 91); however, this is an issue which requires serious consideration of the whole philosophical tradition and its attitude to religion. Even if the appeal to philosophy is made (T. Mether, 65), there is always a danger that the stance is predetermined by some contingent academic or aesthetic choices which are neither intrinsic nor necessary. Philosophy, involved in the dialogue between theology and science, cannot be religiously neutral; that is, the theological commitment must be implanted in it from the very beginning. But the nature of this commitment must be explained independently of both science and philosophy.

The book contains some interesting papers related to specific scientific fields, namely ecology (B. Foltz, 105) and bioethics (J. Breck, 119). In both papers the sphere of religious morality enters scientific discourse without the mediation of philosophy, for it deals with practical issues of life and death. Here anthropology demands a contemplative insight, perceiving life as a gift of God, so that theological commitment emerges as an existential necessity. Foltz's paper raises the philosophical and theological issue of the discernment of the difference between 'nature as environment' and 'nature as creation' (111-118; see also a paper by G.

Woloschak, 53, and that by C. Knight, 41, on the theological elucidation of the natural). This distinction has an anthropological dimension, for it implies that a human being is not only a biological organism, but also a transcendent creature, capable of seeing the presence of God in the works of creation (108). It also brings on board an aspect of the human condition after the Fall which acts to limit the comprehension of reality through science. Understanding of science is elucidated through the work of contemplative rationality mediating between divisions in creation, leading ultimately to the perception of creation as proclaiming the glory and love of God. Foltz must be praised for a clear stance that the Orthodox attitude to the sciences and their natural limits in comprehension of the world can only be formulated if the world as a whole is treated as creation. Once again, this paper demonstrates that the dialogue between science and Orthodox theology cannot be neutral, that is, free from commitment to the faith enterprise.

Another paper which deals with a possible methodology of mediation between theology and science is T. Mether's 'Toward an Orthodox Philosophy of Science'. Mether states five principles of such a philosophy (189-193): 1) reality is much richer than what is articulated by the sciences; 2) nature does not disclose the foundation of its own facticity; thus it has a transcendent foundation; 3) scientific apprehension of nature explicates the human condition after the Fall; 4) no explanation of created nature can be complete, regardless of what epistemological trend it is made in; 5) thus all human scientific knowledge is apophatic, in that it does not exhaust that which is supposed to be signified. Presented in this way all these principles seem to be intertwined and related to the general philosophical assertion that nature is contingent upon its other-worldly foundation, that is, created (cf Foltz). Certainly the notion of the Fall represents a biblical

intervention, but is now related to the incomprehensibility of the facticity of human personhood. Thus what seems to be missing in all stated principles is a clear theological indication that the very possibility of science, that is, the possibility of articulating the whole world as creation, originates in that other who is the ultimate archetype of humanity, that is, the person of the Divine Logos, the incarnate Christ through whom and by whom the world was made and became known. But, from a purely philosophical point of view, this makes it clear that the philosophical frame of mind within an Eastern Orthodox theological commitment must borrow its methodology from transcendental philosophy and phenomenology. Their stance on the difference between theology and science indicates that both represent two modes of one and the same hypostatic subjectivity, whose split, because of the postlapsarian condition, is to be overcome. On a critical note, this paper bases its argument on an ad hoc selection of philosophical literature that reflects the preferences of the author. By so doing it amazingly ignores many similar insights made in other publications, in particular in the classical book on 'Postmodern Metaphysics' by C. Yannaras.

In conclusion, one may say that the present volume contains interesting insights into the problem of Orthodoxy and science; however as a whole it lacks coherence and systematic methodology. Unfortunately, the text contains a series of misspellings, typos, bibliographical discrepancies and incomplete references.

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Graham Buxton, Chris Mulherin and Mark Worthing
God and Science in Classroom and Pulpit

Preston, Victoria, Australia: Mosaic Press, 2012. 148 pp. \$19.95AU. ISBN 9781743241370

Over the years those who regularly speak about the relationships between science and religion have assembled a rich collection of ideas, metaphors and tools which are helpful when presenting newcomers with an overview of what it is useful to know. For that reason, *God and Science in Classroom and Pulpit* will provide many readers with a handy (due to its concise size) and accessible (due to the authors' readable styles) guide to some of those key arguments. Here for example, readers will find the example of a 'boiling kettle' to illustrate different types of explanation. As a science educator I am glad to see these wonderful metaphors wrapped into new and fresh expositions – if they can become sufficiently embedded in the literature that finds its way to teachers, they can become part of the shared language of our profession and perhaps go some way in helping teachers to feel more comfortable about challenging the stereotypes that persist in this field. My main criticism is that there is no index, which might disappoint 'busy teachers' wanting quickly to find again something they earlier read. To be fair, as the preface explains, several of the chapters arose out of a lecture series and this does help the reader to know what to expect. What is welcome is that the authors draw on their own experiences to provide frameworks for the discussion, something which helps to keep the reader engaged. In teaching, it can be useful to provide young people with texts as a way to stimulate thinking and to challenge assumptions such as those instilled by the media. The advantage for teachers is that they are enabling students to access different views of the relationship while not advocating one position over another.

There are many passages in *God and Science* which would work very well, particularly those discussing the history of the relationship.

To conclude, this is not a remarkable book but it is a very useful one. As someone who encounters repeatedly in classrooms stereotypes about what science and religion 'must say' I am grateful when those who have taken the time to study this field note down quickly what they find it most useful to say to new audiences – because those are indeed often the most valuable things that can be said.

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Stephen Finamore and John Weaver (eds.)

Wisdom, Science and the Scriptures: Essays in Honour of Ernest Lucas

Oxford: Regents Park College Publications, 2012. 264pp. pb. £20. ISBN 978-1-907600-13-5

Reviewing a book written to honour the achievements of such an esteemed teacher, scientist, theologian and writer as Ernest Lucas feels a little like walking on 'holy ground'. As a former student it also creates a certain anxiety. That said, this book is a collection of essays from scholars, colleagues and friends to mark Ernest's retirement in 2012 and also aims to contribute academically in the areas of study in which Ernest has specific interest.

The delight and demand of this collection of essays is its diversity. It is an academic work that covers a wide range of interests, all of which relate in some way to Ernest's own scholarship and career. Reflecting Ernest's expertise as a scientist (as a research biochemist) and theologian (with spe-

cific interest in Wisdom literature and Biblical Studies) the reader is taken on a grand tour encompassing for example: the legal settings in Proverbs; the impact of climate change in the developing world; a historical overview of the beliefs of ten leading scientists; and the evolving agenda of Biblical Studies. What this means for the reader, whose interests may not be quite as diverse, is that working through the book feels like a rather demanding orienteering exercise where you enjoy being taken on a delightful tour of new territory but are somewhat relieved when you return to something familiar. This is a book where the reader is likely to be at home in one of the three main sections but may find other sections of less direct interest.

The book is split into the three sections headlined in its title: Wisdom, Science and the Scriptures. It is the middle section that deals most directly with the interface of science and theology and even here there is great diversity in the contributions. Paul Fiddes explores the place of wisdom based approaches to care (alongside the evidence based approach) in a way that reflects ancient Wisdom in Israel as characterised by the integration of *observation* and *participation*. It challenges the validity of polarised approaches and calls for a deeper integration in contemporary practice. The *epistemological* question of how we know things, and on what basis we can state things about the knowledge of God, is explored by Brian Haymes. He affirms the importance of using different approaches as both scientist and theologian in the quest to know. These papers are well balanced by a technically simpler but fascinating overview of the scientific beliefs of ten leading scientists (an essay contributed by Robert White, Professor of Geophysics at the University of Cambridge) beginning in the seventeenth century with Robert Boyle to that of Rutherford and Shackleton more recently. Interestingly, the conclusion is that belief in

God has been significant historically among leading scientists and that the contemporary situation tends to mirror this pattern.

Each essay in this collection has value in respect of our understanding of ancient wisdom, biblical studies or in raising some fundamental issue for Christian discipleship. The two papers that address the reality of climate change and how that reshapes both our understanding and Christian calling would be good examples. I commend this book, not only because of its objective in honouring Ernest Lucas but also as a collection that broadens the horizons of the reader.

There are two final comments that must be made. For all cricket lovers (including Ernest Lucas himself) the final contribution by Robert Ellis provides a slightly lighter angle on the themes in play; and finally, a delightful aspect of the book are the prayers that follow each essay where the key idea of each paper is used to inspire a simple devotion. This beautifully serves to focus the work in the honour of God and has the added benefit of providing a useful synopsis of the key point of an essay if the wicket has proved to be a bit sticky.

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Karl W. Giberson

The Wonder of the Universe: Hints of God in Our Fine-Tuned World

Downers Grove IL: IVP Books, 2012, 216 pp. pb. £10.72. ISBN 978-0-8308-3819-6

This book is, in part, a sequel to Giberson and Francis Collins' book *The Language of Science*. It aims to be a faith-friendly 'science and religion' book (202), and it largely succeeds in that it treats both science and faith with respect. However, it sometimes fails to

deal explicitly with the faith commitments implicit within science.

It is an accessible, easy read with a lightness of touch that one would expect from Giberson, who has written or co-written eight books dealing with the interaction between science and faith. As always, Giberson writes with the conviction that science is the 'handiwork of the Creator' (13). He seeks to show that, on the one hand, Christians need not fear science as a challenge to faith and, on the other, that science does not necessarily lead to, or promote, atheism. His main theme for this book is that 'our expanding view of the world around provides us with a constant new source of wonder that motivates reflection on the Creator of this world' (25).

The first part of the book tells the 'story' of science from the Greeks to the big bang and quantum theory. Giberson focuses on the cosmic coincidences that make 'the Earth such a great place to live'. In the second part he looks more at the design arguments. He avoids the inductive approach of moving from design to a designer and rightly suggests that design arguments are 'all-too-often based on gaps in our knowledge'. But if we believe in a designer then we should see marks of design in the creation.

At times there is almost a tacit acceptance of belief in the progress of science and in the scientific method. We are provided with an oversimplified view of the scientific method: observation and theory are the two legs of science. Much of the discussion of observation and theory is very good and he does acknowledge the 'complex and idiosyncratic' relationship between the two, but he sometimes doesn't quite go far enough. There is little discussion of the theory-dependent nature of observation (we see what we want to see) and the role of worldviews in our understanding.

Giberson has an optimistic view of science, though he does acknowledge

that it 'is a finite human enterprise with all the limitations that entails' (125). He sees the progress of science as one that '*extends, encompasses and absorbs* rather than *refutes* old understandings' (128). For him science works by consensus, but 'there is no way to draw a clean boundary between science and nonscience' (137) and yet he does draw boundaries when he asserts that astrology and dowsing are not science, though he is more circumspect where multiple universes are concerned. He sees science, then, in terms of a spectrum: presumably, the demarcation is by consensus; and we are encouraged to 'trust the generally accepted picture of science' (140). Is democracy a way of deciding truth or even science?

The book is well illustrated with black and white photographs and line drawings scattered through the text and with eight colour plates. There is a short bibliographic essay, but, surprisingly, there is no mention of Polkinghorne's work in the bibliography – and that despite Giberson having previously written a book about him (which *is* mentioned; for a review see *Science and Christian Belief* (2012) 24 (1), 87; for my less effusive review see *PSCF* (2012) 64(4): 271).

Despite some of my reservations this is a helpful well-written introduction to the complex area of science and faith. Giberson succeeds in showing that science can be embraced as an encouragement rather than a threat to the Christian faith.

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Andrew Pinsent

The Second-Person Perspective in Aquinas's Ethics: Virtues and Gifts

New York: Routledge (Taylor & Francis Group), 2012. 156 pp. \$125. ISBN 978-0-451-89994-9

I admit that the majority of the books that I encounter regarding science and religion can be characterised as mild to moderate disappointments. Not that there are egregious errors in such undertakings, rather, notwithstanding promising titles, the authors rarely offer new or discerning thoughts. Most such endeavours fall into one of two categories: well meaning and devout scientists who restate the problem and discuss vague generalities without concrete insights, or humanitarians who misunderstand the power as well as the limitations of the scientific method. In short, I often come away disappointed.

Not so with the recently published book entitled *The Second-Person Perspective in Aquinas's Ethics: Virtues and Gifts* by Andrew Pinsent of Oxford. The title of this book, as well as the series of which it is part (Routledge Studies in Ethics and Moral Theory), may lead one to question why such an opus is even reviewed in a periodical devoted to science and Christian belief. However, Dr Pinsent, aside from being a theologian and ethicist, is also a particle physicist. Therefore, in his reflections on ethics and Thomas Aquinas, he does not stray far from his roots as a scientist, which allows him two intriguing insights.

One such insight involves autism, a neurological disorder that has received considerable recent attention in the popular and scientific press, including my own neuroimaging community. Autism is a disorder characterised by diminished social interaction and communication, or, in other words, an impaired ability to form 'second person' (or I-you) relationships.

Pinsent avers that Aquinas introduces the second-person (I-you) rela-

tionship between an individual and God, which is in principle missing from the Aristotelian understanding of the virtues, mostly due to Aristotle's fundamentally different understanding of God compared to Aquinas. The introduction of the second person perspective by Aquinas allows one to 'remove one's spiritual autism' (page xii) and to synchronise one's will with the will of God in order to achieve the virtues, gifts and fruits not present in the Aristotelian paradigm. Pinsent describes this as a 'joint attention' or a 'meeting of the minds' between God and an individual who together can attend to the issue at hand – acquisition by the individual of the virtues. Such joint efforts appear to be absent in the Aristotelian understanding of how one achieves virtue.

Pinsent argues that the 'acquired' (in the Aristotelian way by habituation, and according to nature) virtues are fundamentally distinct from the 'instilled' (by the Holy Spirit in a fundamentally non-Aristotelian way according to Aquinas) virtues, which leads to the second insight, which I found most interesting. Pinsent employs the physics concept of 'resonance', an analogy from physics on how the concerted activity of God and man can be actualised. The application of this physics principle may be especially endearing to those of us who struggled through the equations governing harmonic oscillators. Being in harmony or in a state of resonance with God to strive for virtue is an apt metaphor. Different waves can work together in a concerted manner, while remaining independent in a manner similar to God's will not being imposed on our independent human will.

Pinsent begins to unravel the mystery of the interaction of God and man using the autism metaphor; however, autism as well as other similar neurological disorders are much more than metaphors. They are real diseases that affect real people in profound ways. Christ healed both spiritual as well as purely physical disorders, the latter often serving as a

metaphor for the former. Yet, Christ's deeds resulted in concrete physical changes: the blind could see, the lame could walk and epileptics were cured of their affliction. As a further challenge, I would be very interested to see how Pinsent will expand on the questions raised in the current book, specifically, the actual effect of God's grace on our physical universe and on our own physical bodies. I understand that this is a tall order, but I hope and trust that the current opus is just the first of many more fascinating discernments by the author.

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Rodney D. Holder and Simon Mitton (eds.)

Georges Lemaître: Life, Science and Legacy

Heidelberg: Springer, 2012. (Astrophysics and Space Science Library 395, Royal Astronomical Society.) 201 pp. hb. £90.00. ISBN 978-3-642-32253-2

I concur with the verdict of John Polkinghorne in his concluding summary: "This book is a rich and illuminating collection of chapters, reflecting on the life and influence of Georges Lemaître in many ways and from many perspectives." It is unusual for a publication which deals with theological and philosophical issues as well as cosmological ones to be included in the astrophysics and space science library series sponsored by the Royal Astronomical Society. The year 2011 marked the 80th anniversary of Georges Lemaître's papers outlining his "primaevial atom" model of the origin of the universe - the direct precursor of the current "big

bang” model. A conference was held in Cambridge to review and assess his life and work, and to discuss related philosophical and theological issues in cosmology. This book is not identical in content with that conference, but consists of contributions from most of the contributors, plus some from those who were unable to be present. The level of presentation is academic and authoritative, without being excessively technical; my assessment is that most readers with a general appreciation of modern cosmology will only find serious difficulty with a couple of the chapters, and even those contain useful and accessible material.

I found it valuable historically, for example in explaining how Lemaître’s pioneering calculations relating to an expanding universe have been unfairly eclipsed by the work of Hubble, in comparing his work and philosophy with that of Fred Hoyle, and exploring their personal friendship despite strong differences both scientifically and theologically, and in demonstrating the remarkable range of Lemaître’s research. I appreciated the theological insights, in particular those concerned with whether the idea of a big bang and the origin of the universe a finite time ago should be used to argue for the idea of divine creation. Despite his support for what we now call the big bang and his strong Christian convictions, Lemaître wished to play down any such connection. For me the most illuminating and helpful chapters, related to Lemaître’s work but very much focussed on contemporary cosmology, were the chapters dealing with the anthropic cosmological principle and the multiverse hypothesis, by authors with very different perspectives both scientifically and theologically. It is helpful to be reminded that some Christians are in favour of the multiverse, while some atheists reject it! These chapters, with their full list of references would make a good starting point for a serious study of these issues, and while the

relationship between science and faith is not the central subject here, a careful reading will surely help to clarify one’s thinking in this area.

While on any one of the topics dealt with here, whether it be the details of Lemaître’s career as expounded by Dominique Lambert, the remarkable story of how Lemaître’s own translation from French of his pioneering work on the expanding universe was “censored” so that credit would be given to Hubble, or contrasting views of the multiverse by George Ellis, Don Page, and Bernard Carr, one can find more extensive treatments elsewhere, this book provides a unique “way in.” The editors and authors are to be congratulated on their work; it is a pity that the price (typical for academic work) will deter most purchasers except libraries. But try to read it if you can!

Paul Wraight has retired from teaching physics and engineering (and a little astronomy) in Aberdeen, but maintains his interest in design and related issues.

Deborah Haarsma & Scott Hoeszee (eds.)

Delight in Creation: Scientists Share Their Work with the Church

Grand Rapids, MI: Center for Excellence in Preaching, 2012. 255pp. pb. \$16.99.
978-0-59039-4

Many readers of this journal will have given a talk to their church or youth group about being both a scientist and a Christian. There is probably no pattern to such expositions: some people describe their scientific practice, presumably emphasizing that there is no possibility of conflict with their faith; others concentrate on traditional areas of dissension; still others start with an ordered universe and show how science is really little more than “thinking God’s thoughts after him.”

Intriguingly, our North American brethren seem ahead of this *ad hoc* approach. *Delight in Creation* is a product of the “Ministry Theorem”, a John Templeton Foundation funded programme based at Calvin College in Michigan. At the launch of the project, John Polkinghorne said, “It is important that ministers of religion should not fear science but be able to welcome its insights. They need the intellectual confidence to argue for the compatibility of science and religion, whose understandings, rightly understood, complement each other rather than standing in conflict.” This is an aspiration which many of us will support unreservedly.

Delight in Creation is a collection of essays by 12 scientists (plus an Introduction and a chapter by a scientist’s husband), originally commissioned as directed at pastors and churches. Eight of the authors teach at Calvin College. The disciplines range from the theoretical (“Bioethics”) to straightforward history (“Science and faith of Robert Boyle”), via two chapters on psychology (including the most referenced one – on “Same-Sex Attraction” by Heather Lody, which could well be read with profit by many contemporary debaters), two on the environment, one on technology, two on mathematics, one on geology, and two on astronomy. A few are very technical – in the sense of being beyond the easy comprehension of your reviewer - but they all reflect individual interpretations and (presumably) considered attempts at reaching non-technical audiences.

One statement surprised me: “If we replace our childhood awe of lightning with an explanation like, ‘It’s nothing but a transfer of voltage across a highly resistive material’ (an example of what G.K. Chesterton wittily called ‘nothing-buttery’), perhaps the world will seem like a less wonderful place” (21). The sentiment is fine, but did Chesterton really call it ‘nothing-buttery’? My enquiries have failed to find any Chestertonian source. In science-faith circles,

the concept of ‘nothing-buttery’ is firmly linked to Donald MacKay. The earliest mention I can find is in MacKay’s Falcon booklet, *Science and Faith Today*, published in 1950. MacKay refers there to “the old debate, as to whether man was ‘nothing but’ or ‘something more’.....” In the *Clockwork Image* (1974), MacKay wrote, “something like twenty-five years ago, I christened it [the concept] ‘nothing-buttery’. It seems fair to reclaim ‘nothing-buttery’ for MacKay.

However my intention is not to moan about such misunderstanding. I welcome the Ministry Theorem initiative, and applaud it. I join positively with it by recording the ending of some of the essays:

“As Christians, may God assist us in developing moral discernment consistent with his will and to his honor and glory” (47)

“Creation has the capacity to raise the most beautiful song of praise to our Creator, but the best expression of that melody features all of the earth’s voices. As stewards of this grand symphony, it is our task to protect this chorus, cherish the music and learn how to join in the song ourselves” (102)

“We are entering an era of global challenges that will require radical and courageous behavior from all our leaders and from human society as a whole... The church has a crucial role to play in this drama as it proclaims the good news of the Word who was present at the very creation of the earth and all that is in it” (125)

“Idealistic, creative young Christians have the potential to impact the world for Christ in significant ways by becoming engineers and scientists, as well as pastors and doctors” (139)

“Among the ways that beauty finds its presence within a mathematical discourse are the unexpected connections revealed within the physical makeup of reality, the pleasing encounter with

and fruitful productivity from symmetric relations, and the contemplation of transcendent realities within higher dimensions surmised through the power of analogy... If one is willing to step back to take it all in, it can inspire a sense of awe and a consideration of the possibility of a divine author of all that there is – perhaps leading the one contemplating to respond in the most profound fashion: Glory!” (179)

“There is a wideness in God’s mercy, and that wideness includes eons of time and a redemptive plan beyond our ability to imagine” (196)

“The night sky isn’t meant to remind us of how small we are; it is meant to remind us of how vast God’s love is” (216)

“There is no better way to give us so

great a wonder and veneration for the divine wisdom, than by knowing and considering the admirable contrivance of the particular works of that immense wisdom, which cannot reasonably be ascribed to any other than a most intelligent and potent Being. In this way, we may be brought upon the same account, both to *acknowledge* God, to *admire* him, and to *thank* him” (255)

It is no criticism of *Delight in Creation* to end with a quote from Qoheleth, “There is no end to the writing of books... You have heard it all. Fear God and obey his commandments: this sums up the duty of mankind” (Ecc 12: 12-13).

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