

## Book Reviews

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**Sarah Hobson &  
Jane Lubchenko (editors)**  
***Revelation and the Environment:  
AD 95–1995***

World Scientific, 1997. 204 pp. hb  
ISBN 0-19-850256-7

This book is a collection of papers from a symposium held on a journey to Patmos to celebrate the 1900th anniversary of John the Theologian's composition of the Book of Revelation. This was no run-of-the-mill symposium, but a gathering of prestigious scholars in theology, environmental science, journalism, economics and law.

The focus on the Book of Revelation gave the discussions a rather different slant from the more common reflection on creation as based on the story of Genesis. Revelation forced participants to think about creation in a futuristic way. While this was a strength in providing a common theme, its drawback was that only the apocalyptic strand of Christian theology was aired. This had the tendency to reinforce dualistic strands in Christian thought which sharpened the contrast between Christian and other religious traditions which were discussed at the end of the book. As one might have expected, the Greek Orthodox and established Christian Church traditions were well represented. Other Christian perspectives, such as Reformed, Liberal, Feminist or Liberation Theology, did surface indirectly through comments from those who were not professional theologians or Church representatives. In spite of its title, the actual theological input on Revelation itself was confined to one chapter out of seven, five others focussing on different areas of environmental responsibility. Some of these contributors did engage in limited theological reflection, though overall I had the impression that Revelation served

more like a metaphor for discussion from theologians and scientists alike.

The individual contributions to each chapter were, at times, frustrating in their brief commentary of a few pages and, apart from the first chapter, disjointed when read as a whole. The style of language used was more appropriate in most cases to the spoken word. This was not necessarily a problem as it helped to recreate the atmosphere of the symposium. However, it did leave the reader wondering what else might have been discussed. The attempt to address this question by reproduction of a few small discussion groups at the end of the book was only partly successful.

The science was largely an update of more recent facts concerning environmental damage. This might be useful to anyone teaching in the whole area of environment and theology. The gradual deterioration of the environment seldom attracts public attention, which is one of the particular problems of media coverage of these issues. One author who contributed to the chapter on 'Valuing the Environment' interpreted Revelation in a negative way, as a book which devalued nature by its focus on history, rather than the cosmos. This sat rather uneasily with subsequent contributions which stressed the need for justice, which forces us to consider the rights of people both now and in the future. A weaker theme, but one which was significant, was the inclusion of debates about growth and development and a challenge to richer, Northern states. It is a pity perhaps that the contribution from the Philippines seemed to be added to the book like an afterthought.

The multi-faith perspectives that were included were far too brief to be of any real credit to any of these religious traditions, except perhaps to show a certain solidarity between different religions'

concern for the environment. The more practical Patmos proposals, directed specifically for the attention of the Ecumenical Patriarch, would be supported by many interested in these issues. It was unclear what purpose these served and how these have been taken up and used other than assuaging the conscience of those who had taken part in an academic symposium who desired something practical to be done.

**Celia Deane-Drummond**

**Celia Deane-Drummond was a plant physiologist for some years and is currently senior lecturer in applied theology at University College, Chester.**

**Fritjof Capra**

***The Web of Life: A new Synthesis of Mind and Matter***

HarperCollins, 1996. 320 pp. hb  
£18.00. ISBN 0-00-255499-2

Capra sums up the thesis of this book as being, 'that a theory of living systems consistent with the philosophical framework of deep ecology, including an appropriate mathematical language, and implying a non-mechanistic, post-Cartesian understanding of life, is now emerging' (153).

The framework to which he refers sees the world, 'as a network of phenomena that are fundamentally interconnected and interdependent. Deep ecology recognizes the intrinsic value of all living beings and views humans as just one particular strand in the web of life' (7). For Capra deep ecological awareness is spiritual or religious because for him spiritual consciousness is 'the mode of consciousness in which the individual feels a sense of belonging, connectedness, to the cosmos as a whole' (7). He is convinced that care for our environment will flow naturally if 'the "self" is widened and deepened so that protection of free Nature is felt and conceived as protection of ourselves' (12, note the capital 'N'). What Capra sees as a

virtue, the removal of any special valuation of human life, may be a major defect. It trades on the ideas of human dignity and worth which, as a matter of historical fact, have been derived from the Judeo-Christian tradition. Capra hopes that these ideas will be transferred to 'free Nature'. However, they may not long survive the loss of the Judeo-Christian framework. The result would be a dehumanizing of humans rather than a humanizing of the non-human.

Christians could argue that the protection of free nature (no capital 'n'), is better approached by following the biblical injunction to love our neighbours as ourselves. This has profound ecological implications. For example, it rules out the 'nimby' reaction. If something is bad in my backyard, I should not wish it on my neighbour. Biblically, neighbours include both those who share the earth with me now, and those who will do so by following me, future generations. Jesus taught that 'neighbour' includes those I think of as 'my enemy'. But what of the non-human world? Deep ecologists object that the biblical elevation of humans to a special status, as those created in the image of God, gives grounds for the destructive exploitation of the non-human creation. But that is not biblical. Biblically it is a call to respect all creation as the work of the Creator whose image we are, by taking seriously the Creator's valuation of it as 'very good'. It is therefore to be treated responsibly, remembering also that we are accountable to the Creator for our use of it.

Much of the book consists of a very readable account of the rise of systems theory, non-equilibrium thermodynamics and chaos theory. These are used to support the 'web' view of life on earth. When the 'new synthesis of mind and matter' comes it is something of a disappointment. It is more a re-definition than anything else. We are told that 'mind is not a thing but a process – the very process of life . . . the organizing activity of living systems, at all levels of life, is mental activity . . . Mind – or, more accurately, mental process – is immanent in matter at all levels

of life' (168). Capra claims that this avoids both Cartesian dualism and old-fashioned vitalism. However, it does so by making mind simply an epiphenomenon of the physical processes of life. This seems to be a route to determinism. Capra tries to get around this in two ways. He appeals to the 'openness' and 'flexibility' of dissipative systems, speaking of their ability to 'choose' their future state – but admitting that he is using the word metaphorically. The use of terms like 'openness' and 'flexibility' of these systems is really a function of our perception of them, based on our inability to predict their behaviour. He also appeals to the fact that they are 'self-organizing' systems. But the chemicals in the so-called 'chemical clock' reactions are self-organizing. That does not make them free in the sense that we (including Capra) think we are.

As Capra shows, this 'new synthesis' leads to a view of cognition in which it has nothing to do with processing information to produce a representation of an independently existing world. Rather it is 'the bringing forth of a world . . . one that is always dependent upon the organism's structure' (263). He relates this to the Buddhist concept of *maya* – that what we perceive is not an objective reality but a self-generated illusion. He applies this especially (as do Buddhists) to our sense of individual identity. Capra argues that when we look for an independent self within our world of experience we cannot find any such entity. Is this because what many people find is 'a God-shaped void' because they are out of relationship with their Creator?

**Revd. Dr. Ernest C. Lucas**

**Dr. Lucas is Tutor in Biblical Studies,  
Bristol Baptist College.**

**Jonathan Clatworthy**  
***Good God: Green theology and  
the value of creation***

Jon Carpenter, 1997. 234 pp. pb £13.  
ISBN 1-897-76637-8

(Orders to: The Spendlove Centre,  
Charlbury, Oxfordshire OX7 3PQ.  
Phone 01608-811969)

When I first thumbed through this book, prior to a closer reading, the references to Genesis led me to expect yet another book that covers the biblical material on the teaching of creation, and I wondered what this one might contain to set it apart from the others.

A proper reading, however, shows that Jonathan Clatworthy's treatment of green theology and the goodness of creation is coming from a different direction. His aim is to identify, with the Judeo-Christian religious tradition, from philosophy and from modern technocentrism, three broad strands of thinking about the value of creation which he calls pessimistic, neutral and optimistic respectively.

He identifies the pessimistic approach within the bible, and because he is determined to reject it, he has to caricature it (by his own admission). Thus his description of evangelism as 'a distinct, one-sided form of communication. There is no equality between believer and unbeliever. If the believer listens carefully to the unbeliever and tries to enter the unbeliever's world sympathetically, there is a danger of being led astray by the devil's influence.' (p. 63). This is a picture of evangelism that many evangelical Christians will scarcely recognise, but it is essential to the author's argument, in which it is essential to reject certain aspects of scriptural teaching, leaving other elements, concentrating on a somewhat one-sided view of the goodness of creation, which he described as optimistic. Less controversial is his rejection of the neutral view of the material order which is generated by modern secular thought.

His rejection of some of the important strands of biblical material on creation leads to a rather unbalanced attempt to integrate it into a green theology which emphasises (as he rightly believes it should) the goodness of creation. Thus the treatment of evil in the world in the penultimate chapter is less than satisfactory.

What is particularly interesting, and where the book is distinctive, is the use of a largely philosophical approach to outline what such a green theology should look like, emphasising the world's diversity, creativity, interdependence, inclusiveness and balance, and the need to interact with the natural world in ways that are in accord with our awareness of these categories. Some readers will find the process by which this theology is arrived at less than convincing, and this reviewer believes that a more biblical theology, taking into account what the author would call the pessimistic elements as well as the more positive, arrives at broadly similar conclusions.

**Ron Elsdon**

**Ron Elsdon is an ordinand at the Church of Ireland Theological College in Dublin, and author of *Greenhouse Theology* (Monarch).**

**Steven Shapin**

***The Scientific Revolution***

University of Chicago Press, 1996. 211 pp. hb \$19.95. ISBN 0-226-75020-5

Steven Shapin is an authority on Robert Boyle and experimental science in the later seventeenth century. His *A Social History of Truth* (1994) has attracted considerable interest. Many of the same ideas are presented in a more accessible form in the present short survey intended for the non-specialist. *The Scientific Revolution* as a whole is attractive and successful, but the reader might well be deterred by the opening section, which contains a not entirely satisfactory discussion of the idea of a Scientific Revolution. This perhaps raises more problems than it solves. Shapin suggests that the concept of a Scientific Revolution is an artificial and misleading construct adopted by old-fashioned historians of science. However, for operational purposes this concept is applied in a manner virtually indistinguishable from the traditional usage.

Despite arousing expectations of mod-

ernity of approach, much of this account of the Scientific Revolution is in fact very conventional and predictable. Shapin's 'artificially coherent account of distinctive changes in natural knowledge' comprises very much the same elements as contained in Rupert Hall's *The Scientific Revolution*, dating from 1954, and indeed it is not very different from such old classics as E.A. Burt's *Metaphysical Foundations of Modern Physical Science* of 1924. In some ways Shapin's book is a step backwards by neglecting the sixteenth century, through concentrating on a handful of scientific case studies drawn almost exclusively from the physical sciences, by rarely straying beyond the great names and famous books, and on account of its Anglo-centric bias. Obviously, rigorous selectivity is required in a short book, but it is interesting that this work of revisionism has followed a well-worn path in its criteria of selection.

Although most of the case studies are familiar, the organisation of this book is unusual. The first section is largely a conventional history of astronomy and cosmology, but the second and third sections comprise extended discussions of epistemology, methodology, and metaphysics. The third chapter contains a particularly good account of the ways in which natural philosophers of the later seventeenth century reconciled their scientific work with their religious beliefs. The author is on his strongest territory when describing the manner in which the virtuosi of the Royal Society harnessed the mechanical conception of nature to support their notions of the existence and power of God. Aberrant groups such as the Deists are mentioned in passing, but their degree of importance or intellectual position is not explained. Neither is it indicated in any detail that the scientists concerned were very much at cross-purposes in their doctrinal positions and conceptions of God. Consequently, such awkward anomalies as Newton's anti-Trinitarianism are not raised as topics for discussion.

After its awkward beginning, this text succeeds very well in its objective to pro-

vide an insight into the main areas of intellectual concern of the seventeenth century English scientist. The author has provided an additional service by supplying an exhaustive bibliographical essay, which is particularly strong on the main themes of the book, but also on many other subjects, including the relations between science and religion. This book is therefore a splendid introduction to further study.

**Charles Webster**

**All Souls College, Oxford.**

**Karl Schmitz-Moormann, with  
James F. Salmon S.J.  
*Theology of Creation in an  
Evolutionary World***

Pilgrim Press, 1997. 205 pp. \$18.95.  
ISBN 0-8298-1215-6

At the recent meeting of the European Society for the Study of Science and Theology in Durham I heard on a number of occasions sentiments to the effect that it was a great shame Karl Schmitz-Moormann was not present, because he would have contributed x, or y, to the discussion. Dr. Schmitz-Moormann died in 1996. So this little book is his last intellectual legacy, and reading it I could understand why he was so much missed at ESSSAT. The book is marked by a sort of depth of reflection, combined with a deep sense of Christian faith, which make me wish keenly that I had met the author in life.

For many years Schmitz-Moormann worked as a translator and editor of Teilhard de Chardin, so I expected a rehash of Teilhard's controversial quasi-scientific view of evolution. I thought this would be buttressed by reference to recent developments in the science of self-organizing systems, which provide striking support for Teilhard's hunch that systems on the early Earth had inbuilt propensities to give rise to more and more complex forms of life.

Instead Schmitz-Moormann offers a

theology of the God-world relation based on three 'parameters' – union, information and freedom. These are at their clearest when he writes about God in the last and best chapter of the book. God's creative action is patiently to call the entities of the world into greater and greater union, and hence towards the Trinity which is perfect union.

Readers of this journal will be relieved not to find a revival of Teilhard's pseudo-science. But disappointed to find no engagement with the new science of the way order can grow in systems far from equilibrium. They may feel that sometimes terms are stretched out of shape somewhat: 'union' at times seems to mean 'combination', at times 'relationship'. 'Information' is equated with 'spirit' in a way which needed far more underpinning – what looks a good term to use when looking from God's end of the relationship seems more than odd when the discussion starts from the human perspective.

And it is the human-centredness that may trouble some theologians of nature – in discussing the all-important question of the evil, waste and suffering that has been an intrinsic and necessary part of the evolution of creation, Schmitz-Moormann is content to say that God allowed this in order that free, loving creatures like ourselves might emerge. Insofar as there was a price to be paid, God paid it on the Cross. But he glosses over the point that it is not merely God, but billions of creatures trapped in the networks of natural selection who have paid the price of creation developing as it has. Some readers will, with Ruth Page in her recent *God and the Web of Creation*, be tempted to 'return their tickets' if the cost of God's purpose is so high.

This is a pressing theological question, too little examined as yet. Schmitz-Moormann has done Catholic readers in particular a great service in showing how an evolutionary perspective, a consideration of the world as a world of becoming, moves us on beyond many of the treasured categories of scholasticism. He leaves

us a fascinating scheme – which needs a great deal more work both on its key concepts and on its theodicy.

The main text of this useful little book runs to only 145 pages. But a good additional feature is the Appendix of Study Questions, many of which will fortify jaded instructors in this most demanding field.

**Christopher Southgate**

**Dr. Southgate lectures in science and religion at the University of Exeter.**

**Keith Ward**  
***God, Faith and the New Millennium***

Oneworld, 1998. 224 pp. pb £9.99.  
ISBN 1-85168-155-8

The Regius Professor of Divinity at Oxford has taken to writing accessible and challenging paperbacks for the general public, in addition to his weightier tomes addressed to theologians. This is an excellent custom that any others who have Keith Ward's talent for clear and vigorous writing would do well to follow. The immediate predecessor of the volume under review, *God, Chance and Necessity*, had a robust, almost polemical, tone to it as Ward took on the scientific reductionists, such as his Oxford colleagues Richard Dawkins and Peter Atkins. This book has a different character, for it is a charming and rational essay presenting a positive case for theistic metaphysics and Christian belief. The style is philosophical and much of the argument is top-down in character. Ward presents its programme as being one that takes 'full account of modern scientific understanding, a global vision of faith, a sensitivity to the nature of religious symbolism, and an awareness of the varied cultural and historical contexts of religious belief'. At the same time, he seeks 'to be true to the mainstream tradition of Christianity, in the light of more recent developments in factual and moral understanding'. I think that Ward succeeds very well in fulfilling these aims

and that he has written a book that many will find to be a very helpful articulation of a Christian perspective on issues of God, humanity and the cosmos.

Ward is alert to twentieth century discoveries about the pattern, structure and history of the universe. He uses these ideas in general ways, though, understandably, there is little engagement with the detailed content of modern science. On a question such as miracle, he takes an attitude which is open to what goes beyond common expectation, on the one hand understanding why some contemporaries have difficulties but, on the other, pointing out that if Jesus Christ is what Christians believe him to be, it would not be at all surprising if divine power manifested itself in unprecedented ways in his life and its aftermath.

Studying this book would provide a useful philosophical and theological complement to reading more bottom-up books about science and religion.

**John Polkinghorne**

**John Polkinghorne is the retired President of Queens' College, Cambridge.**

**Nancey Murphy**  
***Reconciling Theology and Science: A Radical Reformation Perspective***

Pandora Press, 1997. x+103 pp. pb  
ISBN 0-969-87624-6

Nancey Murphy, Associate Professor of Christian Philosophy at Fuller Theological Seminary has written this slim volume to share some thoughts about how science looks from a Radical Reformation perspective. It is not clear who the book is aimed at, but it is a semi-popular presentation of her recent thinking on theology and science.

One main thrust appears to be to show that theology and science are consistent, and can inform one another on some matters. Not only is theology science-like

(2), so it is not surprising that it can relate to other sciences, but sciences are by their nature hierarchical. Each science acknowledges and relates to those above it. It grants that they have a right to exist and the possibility of saying something to it. Theology deals with the most comprehensive issues so it is the top of the hierarchy in this sense. (Not, notice, in the sense that it is the queen of the sciences and rules the others). Psychology does not eliminate theology or make it superfluous, and can acknowledge that something like theology can exist above it. It can even, while remaining itself, listen to relevant things theology says.

A second thrust is that there should be no conflict between theology and natural science although there is some conflict between theology and the social sciences. (Here Murphy begins to shift between using 'theology' in a general sense and using it to mean 'the theological assertions of the Radical Reformation'.)

First, theology does not make the sort of statements or deal with the sorts of things that could bring conflict with natural science. If there is any conflict – as there can be, because there is overlap – then theology, it seems, must learn from natural science. It is part of the Radical vision that theology is about practicalities not conceptualizations of the universe; it is 'to do with real life, here and now' (1).

Second, the Radical Reformation view of humanity is that it has the possibility of goodness (and so we should not resort to war or retributive punishment, etc.); hence social science is wrong when it assumes otherwise. Thus social science is (and must be) informed by ethics, which is derived from theology. So there is possible, and actual, conflict here between science and theology.

The book title intrigues one, not least because a positive view of science and a fruitful worldview approach to Christianity, which has benefits for one's view of science (and of its relation to theology), has been more typically the product of Reformed Christianity. One might expect that a Radical Reformation alternative

would give us another view of science – but it doesn't seem to. The Radical distinctive seems not to inhere in the view of the relation of science and theology presented, but only in some of the applications made once that view has been adopted.

Murphy's model of the relation between theology and science is thus the central issue raised by her work. She advocates the view that theology stands at the top of a hierarchy of sciences and 'relates to the sciences in much the same way that one science in the hierarchy relates to another.' (17). This she contrasts with a view in which they are fighting over the same turf ('conflict' model), and a view in which science and theology cannot speak about the same things ('two-worlds' model).

Murphy says that she draws on the ideas of Arthur Peacocke as to the relation of the disciplines, putting theology 'above' other sciences. (It would have been useful here to have some interaction with Aquinas, whose statements in ST 1a, I, especially articles 5 and 6, often sound similar. In fact, reference to other standard workers in the field could have helped clarify Murphy's position throughout, by showing how she differs from them.)

Peacocke's view of the hierarchy is making a specific point. That more complex and inclusive types of theories (which typically belong to certain disciplines) should not be assumed to be reducible to simpler scientific theories, belonging to sciences which underlie those higher sciences. So sociology cannot be reduced to biology, even though it might be true that all the phenomena of sociology are without remainder biological phenomena. Sociology enables us to say more than we could ever say biologically.

Murphy on the other hand seems to be saying that the higher science somehow governs the lower. Unfortunately she does not in this volume spell out precisely how this works. As she describes her view, certainly for natural sciences, it seems to end up being a mixture of the two previous views. So chapter 1 seems to say

that theology and science both deal with questions like the existence of life on other planets (and theology must always submit to science here); yet later (65) Murphy talks as though theology just gives the 'purpose' while science gives the natural 'facts' – a classic two-realms statement.

I wonder whether this unclarity relates to the Radical view of Christianity as 'more about changing the world than interpreting its "meaning"' (1). Might not this reduce the relation between science and theology to the limits of consequences and attitudes, leaving out deeper connections such as in methodology and the self-understanding of science – which are striven for in Reformed thought?

**Michael Peat**

*Oak Hill Theological College.*

**Benjamin Beit-Hallahmi and  
Michael Argyle**  
***The Psychology of Religious  
Behaviour, Belief and Experience***

Routledge, 1997. 318 pp. hb £50.00  
ISBN 0-415-12330-5; pb £15.99  
0-415-12331-3

Thoughtful Christians will find in this book answers to many of the questions which come into their minds. Are women more religious than men? Are scientists secular? More precisely, the authors do not provide answers so much as a careful and comprehensive review of the research.

They begin by attempting to identify the irreducible core common to all religions, adopting as a working definition the everyday description of religion as a system of beliefs in divine or supernatural power, and practices of worship directed towards such a power. Chapter 2 expounds as research hypotheses theories that may help to explain religion. After a chapter on methods of psychological research, the rest of the book is concerned with how well such theories stand up to empirical investigation.

Chapter 4 looks at ritual and clergy. 'Rites of passage' involve large numbers of participants, but often low levels of commitment. In Chapter 5 they discuss what is supposedly the most personal of religious behaviour: mystical experience. The next chapter stresses the importance of socialization in the acquisition of religious beliefs. Discussing the influence of parents they note that the broader psychoanalytic concepts, such as projection, have received empirical support. This leads to a chapter which examines changing beliefs and conversion.

The authors then turn to the effects of gender, age and social situation. They consider the greater part played by women in maintaining religion as a living tradition challenges us to provide causal answers. Possible explanations include differences in personality, in socialization and the effects of employment.

On the effect of individual differences of personality and ability they note that while some religious individuals tend to be more authoritarian and suggestible, there are considerable personality differences between different kinds of religious persons, such as those between the intrinsically and the extrinsically religious. The effects of religiosity at the individual and at the group levels are generally beneficial. However, large religious groupings may become serious sources of conflicts.

In the last chapter Beit-Hallahmi and Argyle take up the propositions from Chapter 2 and seek to assess their success in gaining empirical support. Most of the research available for review was carried out in the USA, or in Great Britain or Europe, but it is probably reasonable to generalize the findings at least to other English-speaking and Western countries. Good use, too, has been made of reports by historians and anthropologists dealing with other societies.

Research over the past century has yielded some consistent findings, about religiosity if not religion. Possibly two psychologies of religiosity are needed to cover the separation of the minority of believers with high involvement from the



majority with low involvement. Among important counterintuitive findings is the greater religiosity of natural scientists and engineers, as compared to social scientists, particularly psychologists. (Psychologists who are Christians might take this as a challenge!) The explanation may be the 'scholarly distance' hypothesis: natural scientists apply critical thinking to nature; the human sciences ask critical questions about traditions and beliefs. It may be easier for physical scientists to compartmentalize their science and religion.

The book is a scholarly tour de force and a valuable guide for all who are interested in psychological studies of religion. The material is presented very clearly; it is also highly concentrated. For example, in one page and two lines an excellent summary is given of the use of music in religion throughout the ages. While the main conclusion of the book is that religiosity is first and foremost social, and is learned like other kinds of social acts, this in no way denies the existence of God.

**Rosamund Bourke**

**Dr. Bourke was formerly Senior Lecturer in Psychology at the University of Hertfordshire. Author of books on the psychology of musical ability (under the name of Shuter-Dyson), she is now active in research in the psychology of religion.**

**James B. Ashbrook and Carol Rausch Albright**  
***The Humanizing Brain: Where Religion and Neuroscience Meet***  
The Pilgrim Press, 1997. 233 pp. pb  
£14.95. ISBN 0-8298-1200-8

In the dialogue between science and religion, neuroscience has often been neglected; though over the last 15 years James Ashbrook has been one of the few exceptions to that generalisation. In this book written with Carol Albright, he gives us his latest reflections on this important

interface. Part 1, 'Linking the Physical and the Imaginative' sets out a general approach, while the longer Part 2, 'The Working Brain and God's Ways of Being God', gets down to more specific neuroscientific detail.

The key claim of Part 1 is that 'meaning making' is a central function of the human brain, and indeed what 'humanizes' us and the world. This links to religion in various ways. Faith is, of course, a central part of our human 'meaning-making', but also the meaning-making functions of the brain provide a metaphor for thinking about God; and Ashbrook and Albright reflect here on God as attending, relating, remembering, organising and intending.

The neuroscience in Part 2 of the book is organised around Paul MacLean's model of the 'triune' approach to the brain, a reptilian brain, a mammalian brain, and a new brain (i.e. the 'neo-cortex'). This provides the organising framework for the chapters of Part 2. It is not easy to find any overall scheme with which to present neuroscience in a book such as this, and there are obvious attractions in MacLean's approach, but there are problems with it too, as the authors acknowledge in a footnote.

MacLean's own work on the limbic system, done almost fifty years ago now, made a big impact at the time. However, his idea of three distinct brains differing in age has generally been abandoned (see, for example, J. LeDoux, *The Emotional Brain*, 1996, Simon and Schuster, chapter 4). Actually, the psychology implicit in MacLean's theory, emphasising three different levels of psychological functioning, is probably not too wide of the mark. What has become doubtful is his attempt to localise these in particular areas of the brain.

On the whole, the scientific material is clearly presented, though there are some odd remarks, such as that 'without working memory nothing is personally meaningful' (94). Each chapter ends with some religious reflections. These are often briefer than might have been expected.

Also, the scientific material often doesn't seem to be taken very seriously as such, but just as a metaphorical peg on which to hang religious reflections loosely suggested by it. It becomes increasingly apparent that the authors have no real interest in considering, at a scientific level, what the neural basis of religious consciousness might be.

Though in some ways this is an uneven book, it is also a pathbreaking one with much of interest and value, and all those concerned with the interface of religion and neuroscience will benefit from studying it.

**Fraser Watts**

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**Reijer Hooykaas**  
***Robert Boyle: A Study in Science and Christian Belief***

Translated by Harry van Dyck, with a foreword by John Hedley Brooke and Michael Hunter

University Press of America, 1997. 131 pp. hb ISBN 0-7618-0708-X

Arguably the greatest Christian historian of science of our century, the late Reijer Hooykaas was an active scholar until shortly before his death in January 1994 at the age of eighty-seven. This new book, however, is not from the final phase of his scholarly life but from one of the earliest – and surely the most personally difficult. Written during the Nazi occupation of the Netherlands in 1943, it first appeared as the final issue of the journal *Orgaan*, with the title, *Robert Boyle: een Studie over Natuurwetenschap en Christendom*. Rare enough in Dutch, it has hitherto been completely unavailable in English, so this clear, faithful, and fluent translation is most welcome indeed.

It goes without saying that a book of this vintage, even by a scholar as great as Hooykaas, cannot be current in its schol-

arship, though the foreword by Brooke and Hunter effectively narrows the gap by relating Hooykaas' main themes to the work of contemporary scholars; the fact that Hooykaas does well for the comparison is reason enough to read this highly readable volume. The themes themselves will sound familiar to those who know his other books, especially *Religion and the Rise of Modern Science* (1972), where Boyle is used to illustrate the claim that theology of creation deeply influenced conceptions of science and method in the scientific revolution. Owing to the evangelical fervour with which Hooykaas has stated this particular thesis in various places, his work has sometimes been dismissed as apologetics rather than genuine scholarship, but a few hours spent with the present book will readily show just how wrong such a conclusion is: here we plainly see how deeply and carefully Hooykaas studied and employed primary sources – always a mark of the best scholarship – without imposing upon them meanings they cannot support.

Boyle offers indeed a prime example of the interplay between theology and science, and no other book illustrates this better. After briefly sketching Boyle's life against the background of his times, Hooykaas expounds Boyle's attitudes toward reason and experience in various branches of science, stressing Boyle's doubts about the former in favour of the latter and comparing him to other early modern natural philosophers on this issue. Then we are treated to a sensitive, insightful account of Boyle's theology, drawing connections with his scientific views in several places. Finally we have an extended study of Boyle's understanding of the Bible as special revelation; it is here more than elsewhere that the Protestantism of Boyle and the Calvinism of Hooykaas are most evident, as readers will easily see for themselves – and I strongly hope they will, for they will be adequately rewarded for their efforts.

**Edward B. Davis**

**Dr. Davis is Professor of the History**

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**John Polkinghorne**

***Belief in God in an Age of Science***

Yale University Press, 1998. 133 pp. hb  
£14.95 ISBN 0-300-07294-5

The quality of John Polkinghorne's thought and writing is well known. In this book, which started life as the Terry Lectures at Yale University, he addresses the new shape of natural theology, the similarity between the scientific and theological methods, divine action in the world, the future dialogue between science and religion and the philosophical position of critical realism. That this book began as a series of lectures gives it an immediacy and fluency which is delightful. That this book is written by a physicist with a theological expertise makes it an adventurous read. For the physicist the world is not what it seems because underneath are the forces and particles that make up the deceptive solidity of matter. For the theologian a similar triumph of spiritual reality over material normality is the starting point. With Polkinghorne we embark on a journey towards frontiers and the pioneering reader is carried forward to see a world where God may act, but a God who is not necessarily the God of static time-

lessness and contemplation beloved of popular systematic theologians.

To take just three themes in this book. The possibility of a new natural theology to which physicists rather than biologists are sympathetic differs from that which Anselm and Paley offered in its more tentative and insightful role. Whereas Paley inspected particular instances and drew from them general theistic conclusions, the new style draws upon the physical fabric of the world. In this sense it complements rather than competes with scientific explanation. It is not an argument from design so much as an argument from the 'rational potentiality of the universe'.

The possibility of divine action within the world is mooted on the basis of a non-deterministic chaos theory which leads to ontological openness. Indeed Polkinghorne is content to suggest there may be several kinds of causalities in the universe, each sensitive to local conditions, and that holistic agency offers a way for understanding God's agency. The holistic agency arises from the whole system, not from isolable parts of it, and may be seen in the form of information inputs, where information is understood as analogous to the 'guiding wave' of quantum theory which influences direc-

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Christians in Science and the American Scientific Affiliation organised a conference 2-5 August, 1998, at Churchill College, Cambridge, UK, on the theme 'Science and Christianity: Into the New Millennium'. The conference was attended by over 300 delegates. If you were unable to attend, the following materials may be of interest:

**ABSTRACT BOOK.** 71 A4 pages of Abstracts of lectures and posters, plus the full programme and names of presenters. Cost £10 plus p & p.

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tional preferences. A God who acts in such a world does so without having to exist in relation to the 'block universe' where space and time are different expressions of each other and where our illusory experience of freedom is only the consequence of our timebound natures. A more dynamic and open universe is offered by Polkinghorne and one in which there is an element of time within the divine nature: there are 'temporal and eternal poles of divinity'. God does not know the future because the future does not yet exist to be known. Rather God is the impromptu organiser of events as they unfold. Human freedom is no illusion.

Critical realism is explored and defended and, though there is an admitted circularity in the relationship between theory and observation since each affects and is affected by the other, yet, nevertheless, this circularity is benign rather than vicious and shown to be so in the growing understanding of the world science has achieved.

A marvellous book, then, and one that I am glad has been written.

**Rev. Dr. William K. Kay**

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